Indian Food Packer

All India Food Processors' Association

VOL.55 NOVEMBER - DECEMBER 2001 No.6

QUASH
Baked Beans
PICKLE
TOMATO KATCHUP
CED PPLE
JAM
FRUIT SALAD
FRUIT PACK
Juice
FRUIT DRINK
SO BREEZE

Kejriwal Group

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IN SYRUP
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Editorial

HACCP /TQM in Food Processing Industries.

There are a large number of industrial units in India in different areas of food processing like fruits & Vegetables, bakery, cereals, dairy, meat, fish, etc. Food Industry has been delicenced in the liberalised regime. However, in certain sectors, licencing is still in force like Fruit and Vegetable processing, where one has to obtain a licence under the Fruit Products Order, (FPO) 1955. Several other Food Laws & Regulations are also in force to ensure food safety and protect the interests of the consumer. No doubt there is an urgent need for harmonisation of the various food laws and evolve a uniform code.

Food Industry plays a key role in the national economy. Both for the domestic and global markets, quality and food safety assume prominence, without which food processing units cannot succeed. In order to ensure good quality of the processed food products, it is imperative that close attention and control are exercised at every stage of production, right from the selection of raw materials, processing, packaging, distribution and retailing. It is here that the installation of ISO : 9000 Quality Management System and Hazard Analysis Critical Control Points (HACCP) assumes importance in view of the changing scenario in the international trade. A strict adherence to Good Manufacturing Practices (GMP) is essential. Many of the importing countries now insist on units following at least the HACCP system. The Ministry of Food Processing Industries in operating a Plan Scheme for Generic Advertisement on Processed Foods and Marketing Assistance. Under this scheme, financial assistance in the form of grant-in-aid is provided to all agencies to the extent of 50% subject to a limit of Rs. 10 lakhs towards the cost of implementing Total Quality Management including obtaining ISO-9000 certification, HACCP, etc.

AIFPA has in the past organised a number of workshops on TQM/HACCP with the assistance of the MFPI for the benefit of groups of processors. Some of the processors have already adopted the system and obtained necessary certification. It will be in the interest of all other Food Processing Units to follow suit and avail of the facilities available for its adoption.

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ब्रेड, जी नहीं...
ये है मम्मी-मम्मी मॉडर्न ब्रेड

मॉडर्न
ब्रेड
25 सालों से माँ की पसन्द

ASSOCIATION NEWS

MINUTES OF THE 3RD EXECUTIVE COMMITTEE MEETING OF THE ASSOCIATION HELD AT NEW DELHI ON 3RD DECEMBER, 2001 AT 3.00 P.M.IN PRIVATE DINING HALL, INDIA INTERNATIONAL CENTRE, 40 MAX MULLER MARG, LODI ESTATE, NEW DELHI - 110 003

Sh. Gokul Patnaik, President welcomed the members and briefed about the activities of the Association since last Executive Committee Meeting held at Mumbai on 20.09.2001.

President highlighted the following issues:-

(I) Website of the AIFPA has been launched.

(II) President's meeting with the Finance Minister of West Bengal for issues related to Sales Tax & implementation of VAT proposal from 1st April, 2002 and other follow up actions.

(III) Activating the Zones & the Chapters since interaction with the State Govt. has been realised to be a major step to motivate State Govts.

(IV) Pro-active policy for F&VP industries.

(V) Food Laws and meeting of the Food Additives Sub-Committee to be held on 6th Dec., 2001 under the Chairmanship of Dr. V. Prakash, Director, CFTRI, Mysore.

It was then decided to take up agenda issues:-

1. **Adoption of minutes of 2nd Executive Committee Meeting held at Mumbai on 20.09.01.**

   The minutes of the 2nd Executive Committee meeting held at Mumbai on 20.09.01- adopted.

2. **PFA Notification GSR No. 666(E), GSR No. 667 (E), GSR No. 668(E), GSR No. 669 (E), GSR No. (E) 671, GSR No. 672(E), GSR No. 681 (E), dated 17.09.01 - Consideration.**

   PFA Notifications which were attended to by the Technical Advisory Committee brought to the notice of the members and the comments received from industries were sent to the Ministry of health (PFA).

3. **VAT introduction proposed to be effected from April 2002 - efforts made so far - brief to be given by the President.**

   VAT introduction was almost certain from April 2002 as per the present indications. President gave the details of the various meetings with the authorities in the Govt. It was decided that this matter may further be pursued with the Govt. and Committee members. The Fruit & Vegetable Processing Industries may be treated at par with fresh fruits & vegetables and nil rate of tax or at the level of 4% may be fixed to boost the industry & save of fresh fruit & vegetables during the season.

   President summed up that a presentation before the VAT committee may be made on priority basis.

   President decided that a Workshop on VAT in the last week of December may be convened and Mr. Ramesh Chandra, Secretary of the VAT Committee may be invited.

4. **Preparation about AGM & Seminar on "Potential and Opportunities for Food Processing Industries in the Eastern and North Eastern States", December 13, 2001 at Kolkata - brief to be given by the Vice - President.**

Vice- President briefed about the proposed AGM & Seminar on "Potential and Opportunities for Food Processing Industries in the Eastern & North Eastern State" on 13th Dec., 2001 at Kalkata. Vice President informed about the arrangements made. President invited all the members to attend the Executive Committee meeting at Kolkata on 12th Dec. 2001 and participate in cocktail and dinner to be hosted him.

5. **List of outstanding of the North Zone.**

List of outstanding dues of North Zone was left to be attended to by the Vice -President.

Sh. Y.K.Kapoor, Sh. P.L.Kaul and Sh. N.M.Kejriwal were of the view that Zones and Chapters may be more involved in collection of membership fee & at least 10% may be reimbursed to them for meeting local expenses.

6. **List of membership approved since the last Executive Committee Meeting.**

The new membership approved since the last Executive Committee Meeting are as under :-

Sl.No.	Name & Add	Amount	Category	Zone	Proposed by
1.	Sh, Chandan Kumar Basu C-1/1677, Vasant Kunj New Delhi - 110 070 Ph. 613 5747	750/-	Individual	North	Dr.S.Jindal
2.	Saga Food Products P. LTD., Anna Nagar, Chennai	5000/-	Ordinary	South	S.R.Goenka
3.	Mr. Param Uberoi Country G.M.& C.E.O Seagram India Ltd Tower A, 5th Floor Global Business Park Mehrauli- Gurgaon Road, Gurgaon. - 122 002	11,000/-	Ordinary	North	Dr. S. Jindal
4.	Mr. Amit Shah (CEO) J.B.Foods & Spices C- 1/145/B, GIDC Makarpura, Baroda - 390 010	950/-	Individual	West	Vijay Shah
5.	Dr. Firdosh Madhuvawalla President All Gujarat Packed Drinking Water Federation 501, Narmada Appt. Raopura Baroda - 390 001.	1250/-	Individual	West	Vijay Shah

7. Any other item with the permission of the Chair.

Members participating during the discussion wanted the involvement of younger generation in the activity of the Association.

Dr. Kurade suggested that the focus of the Association should be more on Food Laws & Taxation issues. He suggested that a committee be formed to work out a plan of action to involve younger generation and NRI's.

Sh. Laljeet Singh expressed that e-mail & Web facilities may not help the industries since most of them do not have access to computer facilities.

Sh. P.L.Kaul suggested that there should be more communication on all issues from the Association. The State Govts & State level authorities must be fully involved.

Sh. B.L.Kapoor expressed that due to market recession there are difficulties faced by the industry.

Sh. Laljeet Singh wanted monthly meetings to be convened at the State levels & involve local associations in each state.

Sh. R.L.Chopra suggested that a monthly two page letter may be printed and circulated to create awareness amongst the industries.

Meeting ended with thanks to the Chair.

The members were invited for a get-together by the President.

sd/-
K. P. Sareen
Executive Secretary.

Letter sent by A.I.F.PA to :

Dr. S.R.Gupta
Asst. Director General (PFA)
Directorate General of Health Services
Nirman Bhawan,
New Delhi - 110 011

Sir,

Please refer to the minutes of the Food Additives Sub Committee Meeting held on 26.07.2001 in Nirman Bhawan, New Delhi wherein it was decided to make a list of additives under good manufacturing practices (GMP).

Our Comments are as follows:-

(1) Good Manufacturing Practices.

All Food Additives subject to the provisions of any regulation shall be used under conditions of good manufacturing practices which will include the following:

a) Quality of the Food Additive added to food shall be limited to the lowest possible level as determined by the manufacturer.

b) Quantities of the Food Additive that becomes a component of Food as a result of its use in the manufacturing, processing or packaging of a Food and which is not intended to accomplish any physical or other technical effects in the food itself shall be reduced to as low a level as practically possible.

c) The Food Additive is prepared and handled in the same way as "Food ingredient".

d) In no case the Food Additives mentioned may constitute more that 15% of the mass of any food stuff of which it is a food additive.

2. **"Food Additive"** means any substance not normally consumed as a food by itself and not normally used as a typical ingredient of the food, whether or not it has nutritive value, the intentional addition of which to food for a technological (including organoleptic) purpose in the manufacture, processing, preparation, treatment, packing, packaging, transport or holding of such food result, or may be reasonably expected to result, (directly or indirectly), in it or its by products becoming a component of or otherwise affecting the characteristics of such foods. The term does not include contaminants or substances added to food for main farming or improving nutritional qualities.

3. **"Food ingredient"** means any substance, excluding a food additive, used in the manufacture or preparation of a food and present in the final product although possibly in a modified form.

The proposed list of additives under good manufacturing practices (GMP) along with proposed international code number is enclosed.

For any clarification please revert.

Thanks & Regards,

Yours Sincerely
sd/-
(P.P.S Dhillon)
Chairman, TAC.

C.C. to : Dr. V. Prakash - C.F.T.R.I. Mysore.
President, Vice-President

— — — — — — —

Food additives	International Numbering System No.
Acetic, acid	260
Acetic and Fatty Acid esters of Glycerol	472a.
Acetylated Distarch Adipate	1422
Acetylated Distarch Phosphate	1414
Acid Treated Starch	1401
Agar	406
Alginic Acid	400
Alkaline Treated Starch	1402
Alpha-amylase (Aspergillus oryzae var)	1100
Alpha-Amylase (Bacillus megatenum expressed in Bacillus Subtilis)	1100
Alpha-Amylase (Bacillus Stearothermophilus) expressed in B. Subtilis)	1100
Alpha - Amylase (Bacillus Stearothemophilus)	1100
Alpha- Amylase (Bacillus Subtilis)	1100
Alpha- Amylase (Carbohydrase) (Bacillus Lichentifommis)	1100
Aluminium Silicate	555
Ammonium Acetate	264
Ammonium Alginate	403
Ammonium Carbonate	503(i)
Ammonium Chloride	51G
Ammonium Citrate	380
Ammonium Hydrogen Carbonate	503(ii)
Ammonium Hydroxide	527
Ammonium Lactate	328
Ascorbic Acid	300
Beet Red	162
Bleached Starch	1403
Bromeline	1101(iii)
Calcium Acetate	263
Calcium Alginate	404
Calcium Aluminium Silicate	556
Calcium Ascorbate	302
Calcium Carbonate	107(i)
Calcium Chloride	509
Calcium Citrate	333
Calcium Gluconate	578
Calcium Glutamate, Dl-L	623
Calcium Guanylate, 5	629
Calcium Hydroxide	526
Calcium Inasinate 5	633
Calcium Lactate	327
Calcium Malate, D,L	352(ii)
Calcium Propionate	282
Calcium Ribonucleatides, 5	634
Calcium Silicate	552
Calcium Sulphate	516
Caramel Colour, Class I	150a
Carbon Dioxide	290
Carob Bean Gum	410
Carrageenan	407
Chlorophyll	140
Choline Salts	1001
Sodium Ascorbate	301
Sodium Carbonate	500(i)
Sodium Carboxymethyl Cellulose	466
Sodium Carboxymethyl Cellulose, enzymatically hydrolized	469
Sodium Dihydrogen Citrate	331(i)
Sodium Erythroabate	316
Sodium Fumarate	365
Sodium Gluconate	576
Sodium Hydrogen Carbonte	500(ii)
Sodium Hydrogen Malate, D,L	350(i)
Sodium Hydroxide	524
Sodium Lactate (Solution)	325
Sodium Malate, D,L	350(ii)
Sodium Propionate	281
Sodium Sulfates	514
Orbital (including Sorbitol Syrup)	420
Starch Acetate	1420, 1421
Starch Sodium Octenylsuccinate	1450
Tartaric, Acetic and Fatty Acid Esters of Glycerol (mixed)	472f
Titanium Dioxide	171
Tragacanth Gum	413
Triammonium Citrate	380
Tripotassium Citrate	332(iii)
Trisodium Citrate	331(iii)
Xantan Gum	415
Xylitol	967
Papain	1101(ii)
Paclin	440
Phosphated Distarch Phosphate	1413
Polydextrose	1200
Potassium Acetate	261
Potassium Alginate	402
Potassium Ascorbate	303
Potassium Carbonate	501(i)
Potassium Chloride	508
Potassium Dihydrogen Citrate	332(i)
Potassium gluconate	577
Potassium Hydrogen Carbonate	501(ii)
Potassium Hydrogen Malate, D,L	351(i)
Potassium hydroxide	525
Potassium Lactate (Solution)	326
Potassium Malate, D.L	351(ii)
Potassium Propionate	283
Potassium Sulplate	515
Powdered cellulase	460(ii)
Propionic Acid	280
Protease (Aspergillus Oryzae var)	1100
Salts of Myristic, Palmitic and Stearic Acids ? (Ammonium, Calcium, Potassium, Sodium)	470
salts of Oleic Acid (Calcium, Potassium, Sodium)	470
Silicon Dioxide (Amorphous)	551
Sodium Acetate	262(i)
Sodium Alginate	401
Sodium Aluminium Silicate	554
Sodium Ascorbate	301
Sodium Carbonate	500(i)
Sodium Carboxymethyl Cellulose	466
Sodium Carboxymethyl Cellulose, enzymatically hydrolyzed	469
Sodium Dihydrogen Citrate	331(i)
Sodium Erythrobate	316
Sodium Fumarate	365
Sodium Gluconate	576
Sodium Hydrogen Carbonte	500(ii)
Sodium Hydrogen Malate, D,L	350 (i)
Sodium Hydroxide	524
Sodium Lactate (Solution)	325
Sodium Malate, D,L	350(ii)
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Starch Sodium Octenylsuccinate	1450
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Titanium Dioxide	171
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Triammounium Citrate	380
Tripotassium Citrate	332(iii)
Trisodium Citrate	332(iii)
Xantan Gum	415
Xylitol	967

57th AGM & Annual Conference of A.IF.PA &

National Seminar

on

"Potential & Opportunities for Food Processing Industries in the Eastern & North Region "

December 13, 2001
Kolkata

57th AGM & Annual Conference and National Seminar on "Potential & Opportunities for Food Processing Industries in the Eastern & North Eastern States"

The above conference and National Seminar organized by AIFPA was held on 13th December 2001 at Hotel Hindustan International, Kolkata. Prof. Chamanial Gupta, Union Minister for Food Processing Industries was to have inaugurated the Seminar but due to urgent work in the Parliament at Delhi, he could not make it. He has sent a message for the success of the seminar. Shri Sailen Sarkar, Minister for Food Processing Industries, Govt. of West Bengal gave a special address, inaugurated the seminar and also presented various Awards. Shri D.P.Tripathi, Secretary, Ministry of Food Processing Industries, Govt. of India gave the keynote address. Shri Omesh Saigal, Chariman, National Task Force on Processed Foods, Union Ministry of Food Processing Industries was also present. The seminar was attended by around 150 participants.

Shri Gokul Patnaik, President of AIFPA welcomed the dignitaries and the participants to the seminar. In his speech, Shri Patnaik referred to the sustained efforts made by AIFPA during the last few years which resulted in the exemption of Excise duty on Processed Fruit &Vegetable products in the Union Budget of 2001-2002. He hoped that this exemption would continue in the coming years. Shri Patnaik also referred to the VAT regime due to come into force in April 2002 and indicated that there were four slabs under active consideration, namely, 0,4,12 & 20%. He emphasized that as Fruits & Vegetables are perishable items and there is on tax on them, it would only be in the fitness of things to exempt Fruit & Vegetable processed products also from VAT, as processing is only an extension of agriculture/horticulture and helps in reducing wastage of these commodities. He requested the Hon'ble Minister of Food Processing Industries, Govt. of West Bengal to use his good offices to ensure that the above is given effect to.

The key note address by Shri Tripathi followed after which the Minister, Shri Sailen Sarkar delivered his special address. Their speeches have been printed in the following pages. Several awards of the Association, viz., the prestigious Kashalkar Memorial Award, S.K.Mitra Memorial Award, Subhkaran Jatia Memorial Award, Nirula's Foundation Award, Ganesh Food Products Award, AIFPA President's Special Award and the different Indian Food Packer Awards were presented to selected personalities at the conference. Details of these are printed in the following pages.

Technical Session-I

After the tea break, Technical Session-I chaired by Shri D.P.Tripathi, Secretary, Union Ministry of Food Processing Industries was held. In this session, Shri Tsering Gyurme, Hon'ble Minister for Industries, Textiles & Handicrafts, Arunachal Pradesh and Shri C.Lalrinsanga, Hon'ble Minister for Food & Civil Supplies, Mizoram made their presentations on the theme of the seminar with reference to the scope in their States. The speech of Shri Imkong, Hon'ble Minister of Industries & Commerce, Govt. of Nagaland was read out by Mrs. Khrienuo C. Metha, Deputy Resident Commissioner of Nagaland at Kolkata.

Speaking on behalf of the host state, Shri Ashok Patnaik, Principal Secretary, Food Processing, Govt. of West Bengal stated that West Bengal is the largest producer of vegetables with a wide range and also produces several fruits like pineapple, mango, banana etc. Kolkata has the second largest fish market in the world after Tokyo. Contract farming was still not popular in West Bengal. He mentioned that the plethora of food laws and rules are inevitable. However, entrepreneurial spirit being unlimited, processing industries can always succeed. He assured that his Govt.

will be happy to assist in the establishment of food processing units in the State. Mr. Patnaik mentioned that West Bengal Govt plans to set up a Food Park in Siliguri and also a ginger processing plant. The State Govt is assisting the modernization of 500 rice mills and encouraging production of rice bran oil, which is a very good edible oil with excellent health properties. He said that West Bengal Govt. has allowed offices of APEDA, NHB, and MFPI being set up in the same campus as their Ministry so that it can serve as a single window facilities.

Sh. Rajiv Dhar, Director, Indian Institute of Packaging, Mumbai spoke about the facilities offered by his Institute and Regional Offices. He said that a full fledged IIP Centre is proposed to be set up in the North Eastern Region during the Tenth 5-Year Plan.

In his concluding remarks, the Chairman Sh. Tripathi stated that there is abundance of Raw Materials available in the North Eastern Region. However, its utilization for processing is very poor due to lack of infrastructure. In this connection, he mentioned that Govt. of India has assistance schemes for reefer vans and cold chains. Considerable scope exists for organic farming, particularly in view of growing exports. Growth of RTS fruits drinks has been 28-30% in the last 2 to 3 years. There is also a lot of scope in Bakery Industry. He added that Food Processing Industris can succeed only when there is good marketing tie-up.

Technical Session - II

After lunch, Technical Session-II on the theme of "National Policy on Food Processing" was held. It was chaired by Sh. Omesh Saigal Chairman, National Task Force on Processed Foods, Govt. of India.

In this Session, Sh J.P. Negi, Managing Director, N.H.B. gave an overview of the horticultural situation in the country through an attractive audiovisual presentation. Area under horticultural crops is 153 Lakh hectares and the production of Fruits & Vegetables was 137 million MTs covering a wide range of items. He mentioned that 370 cold storages with 18 lakh MT capacity have been established. Some of these are multichamber multi product ones.

Sh. R.K.Bansal from the Ministry of Food Processing Industries made a presentation on the scope of developing pineapple juice concentrate plants in the North Eastern Region, which grows a lot of the fruit. He indicated that by introducing new varieties of pineapple which can yield higher percentage of juice with higher total soluble solids, the cost of production of pineapple juice concentrate of 65°B can be brought down considerably, by almost 50% . We would then be able compete in the international market.

There was an open house discussion during which several important points were raised by the participants.

Sh. Saigal in his concluding remarks apprised the delegates about the National Food Development Policy being thought out by the Government of India.

57th AGM of AIFPA

Later in the evening, the business session of the AGM of the Association was held, presided over by the President Sh. Gokul Patnaik. Annual Report of the Vice President and Annual Accounts were presented and adopted.

Dr. Subodh Jindal of Excelsior Foods who was Vice - President during the last two years was elected as President, while Dr. K.L.Gaba, Technical Manager, Britannia Industries Ltd., was elected Vice - President for the next year.

AIFPA welcomes them heartily.

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NATIONAL SEMINAR

Background Paper

FOREWORD

Development of the Food Processing Industry in the Eastern Region

There are many paradoxes in the Indian economy. The current paradox, which by now is well known, is that while we have over 60 million tonnes of food grains in our warehouses, over 200 million people in our country still go to bed on hungry stomachs. Another paradox which has been staring us in the face for a long time is that while over 37% of the fruits and vegetables produced in the country are wasted, less than 2% are utilized in the processing industry.

The Government of India set up a separate Ministry of Food Processing Industry in the late 80s, precisely to focus attention on this sector and to develop this nascent industry. At that time, the food processing was considered to be the 'sunrise sector'. Unfortunately, after 50 years of independence and more than a decade of the establishment of a separate ministry, we have yet to see the sun shine brightly or to feel the heat. The value addition to primary agriculture products is still abysmally low and the wastages are unacceptably high.

While the situation in the country as a whole is unsatisfactory, perhaps nowhere is it as bad as in the Eastern and North Eastern sector. This region produces a whole range of plantation crops, spices, fruits and vegetables, flowers and herbs, much of which could be processed and exported to the rest of the country and worldwide. The total production of fruits in the seven states of North Eastern region is estimated to be around 21.12 lakh tonnes, which is 5.5.% of the total production in the country while the production of vegetables is around 33.87 lakh tonnes contributing 5% of the total production. The main fruits are Banana, Citrus, Pineapple. Other fruits cultivated in the region are jackfruit, apple, litchi, guava, papaya, mango, plum, peach etc. along with some rare fruits like Hatkola and Passion fruit.

The entire region is also a vast reserve of medicinal and aromatic plants and has great potential for value added products which can be used as dietary supplements. However, development of infrastructure facilities like transport, communication, power and post harvest facilities are awfully inadequate and the markets are also not developed. There is a need to develop strong and stable linkages between the growers and food processors.

The objective of holding this year's annual session at Kolkata is precisely to focus on the potential and opportunities for development of food processing industries in the Eastern and North Eastern region. The efforts of the Association in organizing this seminar will be rewarded if we can create awareness in the States of this region to think beyond their boundary lines and to work for the regional growth in agriculture and horticulture to benefit the small land tiller and horticulturist. They should also strive to create an enabling environment where existing processing industries can flourish and more investment can be attracted to take advantage of the bounties of nature with which this region is blessed.

Gokul Patnaik
President, AIFPA

ASSAM

AREA, etc. : 78,438 sq.km, Population (1991 census) : 22,-294, 562 : growth rate (1981-91 : 30.05%) Capital: Dispur (Temporary), No. of Districts : 23, Principal Languages : Assamese, Hindi, English; Principal Cities /Towns: Barpeta, Dhubri, Dibrugarh, Digtal, Diphu, Goalpara, Guwahati, Haflong, Jorhat, Karimganj, Kokrajhar, Lakhimpur, Mangaldoi, Nagaon, Nalbari, Pragiyotishpur, Sibsagar, Silchar, Tejpur and Tinsukia.

LOCATION : Located in eastern India, Assam is almost separated from central India by Bangladesh. It is bounded west by West Bengal, North by Bhutan and Arunachal Pradesh. East by Nagaland, Manipur and Burma and South by Meghalaya, Bangladesh, Tripura and Mizoram.

ECONOMY : For more than 56% of the population, agriculture is the mainstay. Rice is the principal food crop. Jute, tea, cotton, oilseeds, sugarcane, potato and fruits are the main cash crops.

- Assam holds a unique position in respect of mineral oil production, Coal, Limestone, refractory clay, dolomite and natural gas are the other resources found in the State.
- Tea occupies an important place and Assam has > 800 tea plantations and contributes about 1/6th of the worlds entire tea production.
- State envisages to double the area under horticultural produce by 2015 from its 3,11,700 ha level of 1990.
- State provides additional incentive such as capital investment subsidy (5%) and upto 50% of cost payable for requisite licences (FPO/Agmark/Trade Mark) for Food Processing Units.

No. OF UNITS LICENSED UNDER FPO

Number of Units				Capacity (MT)
Private	Co.op.	Public Sector	Total	
25	2	2	29	1030

Area, Production and Productivity of Fruits & Vegetables in Assam

Area (in ooo'ha.) (1999-99)		*Production (in 000'MT) (1998-99)*		*Productivity in MT/ha. (1998-99)*	
Fruit	Veg.	Fruit	Veg.	Fruit	Veg.
104.8	245.9	1249.5	2834.8	119.	11.5

Area, production & Productivity of major horticultural crops

Sl.No.	Major Crops	Area (in 000'ha.) (1998-99)	Production (in 000'MT) (1998-99)	Productivity (in MT/ha.) (1998-99)
1.	Pineapple	13.6	209.0	15.4
2.	Orange	5.7	67.7	11.9
3.	Papaya	7.3	108.5	14.9
4.	Banana	411.7	575.2	13.9
5.	Litchi	4.0	18.3	4.2
6.	Ginger	17.93	98.11	5.47

ARUNACHAL PRADESH

AREA, etc. : 83, 743 sq.km., Population (1991 Census) : 858, 392, p Growth rage (1981-91(:35.85%), Capital : Itanagar, No. of districts :11, Principal Languages: Nishi Dafla Miji, Adi Gallong, Wancho, Tagin Hill Miri, Mishmi, Monpa, Nocte, Alka Tangsa and Khampti; Principal cities/ towns : Anini, Along, Bomidila, Daporjo, Khonsa, Pasight, Seppa, Tawang, Tezu, Zero, Naharlagun and Roing.

LOCATION : Bounded by Bhutan to the West, China to the North and North Eastern, Myanmar (Burma) to the East and the plains of Assam to the South, Arunachal Pradesh is the home of more than 20 major tribes and acknowledged to be one of the most splendid, variegated and multilingual tribal areas of the world.

ECONOMY : For more than 63% of the population agriculture is the main occupation: Rice, maze, pulses, potatoes and mustard are the important crops. Principal industries are forest based, besides handloom and handicraft, saw mills; food processing units are in small & medium industrial sector.

No. of units licensed under FPO

Number of Units				Capacity (MT)
Private	Co.Op.	Public Sector	Total	
-	-	3	3	520

Area, Production and Productivity of Fruits & Vegetables

Area (in 000'ha.) (1998-99)		Production (in 000'MT) (1998-99)		Productivity in MT/ha.) (1998-99)	
Fruit	Veg.	Fruit	Veg	Fruit	Veg.
29.7	16.7	91.6	80.9	3.1	4.8

Production of Pineapple

Sl.No.	Major Crops	Area (in 000'ha). (1998-99)	Production (in 000'MT) (1998-99)	Productivity (in MT/ha.) 1998-99)
1.	Pineapple	7.3	30.2	4.1

MANIPUR

AREA, etc. : 22, 327, sq.m., Population (1991 Census) : 1, 826, 714 ; growth rate (1998-91) : 28.56%; Capital : Imphal; No. of districts : 8, Principal Languages : Manipuri, Hindi and English, Principal Cities /Towns: Bishnupur, Chandel, Churachandpur, Imphal, Senapati, Temenglong, Thoubal, Ukhrul.

LOCATION : Located in North - East India, Manipur is bounded North by Nagaland, East by Myanmar (Burma), South by Myanmar (Burma) and Mizoram and west by Assam.

ECONOMY : The main occupation of 66% of population is agriculture. Nearly 92% of the total land area is hilly and covered with forests. Bamboo is found in large quantities in the State. Main crop is paddy, while weat and maize are also grown in some areas. Handloom weaving is the single largest cottage industry. Q.C.equipment subsidy to the extent of 25% is available for SSI Units; Registration and Annual fee (5 yrs.) with BIS etc. is extended to food processing units.

No. of units licensed under FPO

Number of Units				Capacity (MT)
Private	Co.Op.	Public Sector	Total	
6	3	1	10	1330

Area, Production and Productivity of Fruits & Vegetables

Area (in 000'ha.) (1998-99)		Production (in 000'MT) (1998-99)		Productivity in MT/ha.) (1998-99)	
Fruit	Veg.	Fruit	Veg	Fruit	Veg.
23.8	8.5	115.3	45.0	4.8	5.3

Major Horticultural crops: Pineapple, Passion fruit, Ginger etc.

Sl.No.	Major Crops	Area (in 000'ha). (1998-99)	Production (in 000'MT) (1998-99)	Productivity (in MT/ha.) 1998-99)
1.	Pineapple	10	69.8	7
2.	Ginger	1.1	11	10

MEGHALAYA

AREA, etc. : 22, 429 sq.km, Population (1991 Census) : 1,760,625; Population growth rate (1981-91) : 31.80%, Capital Shillong, Languages : Khasi, Garo and English, Principal Cities/Towns : Jowai, Nongestion, Shillong, Tura Williamnagar, Cherrapunjee.

LOCATION : A landlocked territory of lovely hills with abounding sylvan beauty, Meghalaya (meaning :the abode of clouds") is bounded on the north by Goalpara, Kamrup and Karbi Angeong districts of Assam State and on the east by the districts of Cachar and North Cachar Hills. also of the state of Assam, on the south and west by Bangladesh.

ECONOMY : Agriculture is the main source of livelihood for over 83% of the population. Potato, Tezpata, Sugarcane, Oilseeds, Cotton, Jute, Mesta and Coconut are the main crops.Coal, simllimanite, limestone, dolomite, fireclay, felspar, quartz and glass sand are among the minerals of the Khasi Hills, Jaintia and Garo Hills. Felt need is for a quick freezing technology unit and cold chain/transport to utilise the surplus produce of the developing horticulture.

No. of units licensed under FPO

Number of Units				*Capacity (MT)*
Private	*Co.Op.*	*Public Sector*	*Total*	
14	-	2	16	650

Area, Production and Productivity of Fruits & Vegetables Meghalaya

Area (in 000'ha.) (1998-99)		*Production (in 000'MT) (1998-99)*		*Productivity in MT/ha.) (1998-99)*	
Fruit	Veg.	Fruit	Veg	Fruit	Veg.
23.2	36.6	186.4	308.7	8.0	8.4

Production of Pineapple

Area (in 000'ha). (1998-99)	*Production (in 000'MT) (1998-99)*	*Productivity (in MT/ha.) 1998-99)*
9.3	80.4	8.6

Project assisted by MFPI

Project Detail	*Name of the Organisation*	*1997-98*	*1998-99*	*1999-2000*	*2000-2001*	*2001-2002*
Cold Storages	M/s Meghalaya State Agricultural Marketing Board, Shilllong	-	-	44.30	-	-

Project approved for assistance under Mini Mission IV

Project	*Implementing Agency*	*Assistance approved*	*Remarks*
Ginger Processing at Burhihat, Meghalaya	NERAMAC	50	Amount to be released by SFAC

MIZORAM

AREA, etc. : 21.081 sq.km. (2.108 million ha.), Population : (1991 Census) 686000, Population Growth rate (1981-91) 38.98 per cent, Capital : Aizwal, No. of districts : three (five Agri Dist) Principal languages : Mizo, English, Hindi, Principal cities / towns : Aizwal, Lunglei, Champhai, Serchip, Kolasib, Vairengte, Mamit, Darlawn, Thonzauel, North Kawnpui, Saitual, Khawzawal, Sairang, Zawinuam, North Vaulaphai, Bairi, Biate, Khawhai, Lengpui, Tiaung, Hnahttial, Saiha.

LOCATION : Mizoram State is having large part of boundaries with Burma and Bangladesh. In north east it has boundries with Manipur and Assam States of India and in north West with Tripura. The tropic of cancer passes the southern periphery of Aizwal, its capital at 230 to 300 N latitude. The hills are spread from 900 to 2210 meters altitude and rainfall in the range of 200-596 cm. The temperature varies in most party of the State from 10 to 240C,

ECONOMY : Out of the total population about 35% is either cultivators or agricultural labour.

Paddy, maize, pulses, oilseeds, pineapples, oranges, bananas are the main agriculture crops; Mills, tea processing, railway engines, heavy & light machinery and coal based industries. Meat Food Production, Sea food & fish processing units coexist with oil & vanaspati units, rice mills, sugar mills, distilleries etc. Stte reports a shortage of some vegetables as per the report of National Horticulture Board.

NO. of units licensed under FPO

Number of Units				*Capacity (MT)*
Private	*Co.Op.*	*Public Sector*	*Total*	
2-	-	1	3	150

Area, Production and Productivity of Fruits & Vegetables

Area (in 000'ha.) (1998-99)		*Production (in 000'MT) (1998-99)*		*Productivity (in MT/ha.) (1998-99)*	
Fruit	Veg.	Fruit	Veg	Fruit	Veg.
16.4	8.4	76.8	62.4	4.7	7.4

Major Horticultural Products : Passion Fruit, Oranges etc.

Area, Production and Productivity

Sl.No.	Major Crops	Area (in 000'ha). (1998-99)	Production (in 000'MT) (1998-99)	Productivity (in MT/ha.) 1998-99)
1.	Oranges	7.7	30.3	3.9

Project approved by MFPI

Project Detail	Name of the Organisation	1997-98	1998-99	1999-2000	2000-2001	2001-2002
Food Park at Changchhip	Directorate of Industries/ Mizoram Food and Allied Industries Croporation Ltd.	-	-	-	-	200

Project approved under Mini Mission IV

Project	Organisation	Assistance approved	Remarks
Fruit Processing at Chhingchhip	MIFCO	50	To be released by SFAC
Fruit processing at Sairang	MIFCO	50	-do-

NAGALAND

AREA, etc. : 16579 sq.KM (1.658 million ha.), Population : 1215573 Growth Rate (1981 -91) 56.86%. Capital ; Kohima, No. of Districts : Seven, Principal languages : Angami, Hindi, English, Principal cities /towns : Dimapur, Kohima, Chumkedima, Mokokchung, Tuensang, Wokha, Zunheboto, Mon, Phek.

Location : Nagaland is located in the North -East corner with boundaries with Burma, Manipur, Arunachal Pradesh and Assam, The topography of the State is predominantly hilly except for a narrow belt of plains bordering Assam. There are different tribes in the State, speaking different languages and wearing different types of shawls.

Rice, pulses and oilseeds are the main crops. About 86.9% of the total area of the state is under forests. Subsidy for transporation of agri produce to the Industrial Units shall be given to the extent of 50% of the cost of transportation from the place of harvest to location of processing units.

No. of units licensed under FPO

Number of Units				Capacity (MT)
Private	Co.Op.	Public Sector	Total	
2	1	2	5	810

Area, Production and Productivity of Fruits & Vegetables

Area (in 000'ha.) (1998-99)		*Production (in 000'MT) (1998-99)*		*Productivity in MT/ha.) (1998-99)*	
Fruit	Veg.	Fruit	Veg	Fruit	Veg.
11.3	15.1	152.0	313.3	13.5	10.4

Major Horticultural Produce : Pineapple
Area, Production and Productivity

Sl.No.	*Major Crops*	*Area (in 000'ha). (1998-99)*	*Production (in 000'MT) (1998-99)*	*Productivity (in MT/ha.) (1998-99)*
1.	Pineapple	1.8	60	33.3

Project Detail	*Name of the Organisation*	*1997-98*	*1998-99*	*1999-2000*	*2000-2001*	*2001-2002*
F & VP unit	Jomthra MPCS Ltd, Cheutown (NGO)	10.50-	-	5.72	-	-
F& VP	Ardang MPCS, Mokukchung,			10.50		

ORISSA

AREA,etc, : 1,55,707 sq.km., Population : 31.51 million, growith rate about 19 percent, Capital : Bhubaneshwar, No. of districts : thirteen, Principal languages; Oriya, Hindi, Bengali,English and Telugu. Principal cities / towns : Puri, Bubaneshwar, Jeypore, Cuttack, Ganjam, Phulbani, Sambalpur, Balasore, Chilka, Dhenkanal, Bolingir, Mayurbhuj, Keonjear, Sundergarh, Koraput, Rourkels, Deogar, Paradip, Chatrapur, Behrampur, Baleshwar, Khurda Road, Rayagadha, Baripada, Kheonjhargardh, Bhadrak, Karanjia etc.

LOCATION : Orissa is a costal State and lies along the Bay of Bengal. In the North bounds, West Bengal, in the West Bihar and Madhya Pradesh and in the South and South West Andhra Pradesh.

ECONOMY : A large part of the population lives in rural areas. Three quarters of 3.62 million land holders are small and marginal farmers.

Cropping pattern is dominated by paddy, pulses & oilseeds. Principal industries of the state are forest and mineral based. Besides handlcoms, handicraft industries, rice milling, steel fabrication and aromatic kewda production are the industries in the State. Major industries constituting of paper, steel & aluminium, cashew nut production, mango processing could constitute major Food Processing Industry in addition to Grain & Oilseed processing.

Area & Production of Fruits

Fruits / Commodity	*Area*	*Production*
Mango	97.6 (00 HA)	409.4 (000 MT)
Coconut	0.05 (MHA)	7.95 (000 MT)
Cashewnuts	114 (000HA)	50 (000 Tonnes)
Sapota	4.1 (000HA)	16.9 (000 MT)
Mushroom		700(MT)
Honey		297.77 (Rs. In Lakh)
Lime/ Lemon	15.6 (000HA)	133.7 (000MT)
Orange	8.00 (000HA)	43.7 (000MT)
Guava	13.1 (000HA)	75 (000MT)

Vegetables	*Area (000HA)*	*Production (000MT)*
Brinjal	140.8	1773.7
Cabbage	49.9	1357.6
Cauliflower	50.5	701.5
Okra	83.7	758.8
Onion	45.8	360.0
Orissa	6.8	57.7
Tomato	57.5	695.8

SIKKIM

AREA : 7096 sq.m (729000 ha), population 4,06,000 (1991) growth of population (1981-91) : 28.15%, capital : Gangtok, No. of districts : 4 Principal languages : Nepali, Lepcha, Bhuti, Hindi & English . Cities / Towns : Gngtok, Rangli, Rangpo, Namchi, Gyalshing, Sombaria, Lachchung, Rhenok, Penlang, Mangan, Singchik, Yumthang, Chungthang, Dikchu, Rumtek, Pakyung. Sosing (Keosing), Tashiding, Dentami, Hilley, Nayabazar, Lachen.

LOCATION : Sikkim, the smallest State of India, lies in the Eastern Himalayas between 27-28° N latitude and 88-89°E longitude. To its north lies the vast stretches of Tibetan Plateau, to the west, the kingdom of Nepal, to the east Kingdom of Bhutan and Chumbi valley of Tibet and to the South Darjeeling district of West Bengal. Sikkim.is entirely a hilly State with hills ranging from 300 to 8400 meters in attitude.

ECONOMY : Agriculture is the main occupation for about 60% of the population. Rice, coarse grains, wheat, pulses, oranges, ginger and cardamon are important crops. Principal industries constitute Roller flour mills, distillery, beer plant, extruded foods and biscuit plant.

No. of units licensed under FPO

S.No.	*State*	*Number of Units*				*Capacity (MT)*
		Private	*Co.Op.*	*Public Sector*	*Total*	
7	Sikkim	3	-	-	3	2380

Area, Production and Productivity of Fruits & Vegetables

Sl.No.	Major Crops	Area (in 000'ha). (1998-99)		Production (in 000'MT) (1998-99)		Productivity (in MT/ha.) (1998-99)	
		Fruit	Veg.	Fruit	Veg	Fruit	Veg.
8	Sikkim	9.5	9.4	8.3	42.2	0.9	4.5

TRIPURA

AREA, etc. : 10486 sq.km. (10, 49,000 ha.), population (1991 Census) 27, 45,000 : Population growth rate (1981-91) : 33.69%, Capital : Agartala, No. of districts : 3, Principal Languages : Kakbark, Manipuri, Bengali, Hindi, English,Principal Cities / towns : Agartala, Badhrghat, Teliamura, Jogendranagar, Barjala, Pratapgarh, Khowai, Singerbil, Sonamura, Gandhigram, Dharamnagar, Kailashar, Kumarghat, Kamalpur, Udaipur, Belonia, Amarpur, Sabroom.

LOCATION : Bounded by Bangladesh to West and north west Assam in the north east and Mozoram in the south west.

ECONOMY : About 56% of the population is engaged in agriculture, Rice, Mesta, Potatoes, turmeric, pineapple, oranges, lemon, mango, banana and jack fruit are the important crops. Principal industries of the state are forest based as 60% area is covered under forest. Handloom's, handicraft, steel fabrication, furniture and biscuit & fruit processing industries from part of the industry sector.

No. of units licensed under FPO

Number of Units				Capacity (MT)
Private	Co.Op.	Public Sector	Total	
1	1	2	4	2240

Area, Production and Productivity of Fruits & Vegetables

Area (in 000'ha.) (1998-99)		Production (in 000'MT) (1998-99)		Productivity (in MT/ha.) (1998-99)	
Fruit	Veg.	Fruit	Veg	Fruit	Veg.
30.4	18.4	372.1	232.8	12.2	12.7

Major Horticulture Crop : Pineapple, Ginger, etc.

1.	Pineapple	N.A	N.A	N.A
2.	Orange	5.3	25.2	4.8

Proposals Approved

Project Detail	*Name of the Organisation*	*1997-98*	*1998-99*	*1999-2000*	*2000-2001*	*2001-2002*
Food Park at Bodhjungnagar	Department of Industries & Commerce, Tripura	-	-	-	200.00	-
Modernisation of Fruit canning Centre	Department of Industries & Commerce, Tripura	-	-	-	25.00	-

WEST BENGAL

AREA : 88752 sq.kms. (7.27 million ha). Population (1991 census) 67.98 million, Growth Rate : 24.6%, Capital : Kolkata, No of districts : 16, Principal languages : Bengali, Hindi, Nepali and English, Principal Cities /towns : Kolkata, Howrah, Asansol, Chitranjan, Durgapur, Suri, Darjeeling, Siliguri, Jalapaiguri, Malda, Murshidabad, Midnapur, Kharagpur, Chinsurah, Cooch Behar, Burdwan, Bankura, Berahampur, Krishnanagar, Purulia, Rajganj, Bolpur, Dankoni, Kalurghat, Islampur, Alipur Daur, Bishnupur, Gaur, Nawadeep, Shantinketan, Kalimpong, Tarkeshwar.

LOCATION : The State is bounded in east with Bangladesh and Assam, in north with Nepal, Sikkim, Bhutan and in the West with Bihar and in the South with Orissa. Bay of Bengal is in the South east.

ECONOMY : State has delta belt of river Ganga. Land is fertile with a warm climate. A major area of the agricultural land (7.4 million ha) is under paddy. Tea is popular and Darjeeling tea is grown in Darjeeling District. Principal Industries in the state are Jute.

Fruits	*Area*	*Production*
Cashewnuts	9 (000 HA)	8 (000 Tonnes)
Mushroom	-	250 (MT)
Honey	-	442.85 (Rs. In Lakh)
Banana	18.7 (000 HA.)	301.2 (000MT)
Mango	59.3 (000HA.)	339.4 (000 MT)
Pineapple	9.6 (000 HA.)	283.9 (000MT)
Sapota	1.8 (000 HA.)	9.9 (000MT)

Vegetables	*Area (000HA)*	*Production (000MT)*
Brinjal	129.0	2123.5
Cabbage	64.0	1874.7
Cauliflower	50.5	701.5
Okra	52.1	574.4
Potato	3782.0	6692.4
Tomato	39.9	522.0

Prof. Chaman Lal Gupta.

MINISTER OF STATE FOR
FOOD PROCESSING INDUSTRIES
(INDEPENDENT CHARGE)
GOVERNMENT OF INDIA
NEW DELHI - 110 049.

MESSAGE

I am extremely happy that the All India Food Processors' Association (AIFPA) is organising a seminar on "Opportunities of Investment in Food Processing Industries in Eastern and North Eastern States" on 13th December, 2001 at Kolkata.

Referred to as the "Sunrise" sector, Indian Processed Food Industry has shown tremendous potential from the point of view of massive employment generation, enhanced income to the farmers, byproduct utilization, value addition, export of value added products rather than commodities, etc. The Government has, therefore, given the processed food sector a priority status removing all restrictions and extending several other benefits.

The Eastern sector and the North Eastern States, no doubt, produce huge quantities of different varieties of fruits and vegetables. This region, hence promises great potentiality for the growth of processed food industry. Government has launched the Technology Mission for Development of Horticulture in North-Eastern region including Sikkim, having equal emphasis on the expansion of processing of the products.

I sincerely appreciate the efforts being continuously made by the All India Food Processors' Association for the development of this sector. Despite willingness, I could not be present amidst this distinguished gathering due to pre-occupation with my assignments in Parliament. However, I am sure, the seminar will be thought provoking and many new ideas will emerge. The out-come of this seminar would definitely be given the highest consideration at appropriate level in the Government with a view to secure an integrated development of food processing industry.

I wish this event a great success.

sd/-

(Prof. CHAMAN LAL GUPTA)

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ADDRESS BY SHRI SAILEN SARKAR, MiC, DEPARTMENT OF FOOD PROCESSING INDUSTRIES & HORTICULTURE, GOVERNMENT OF WEST BENGAL, ON THE OCCASION OF THE ANNUAL GENERAL MEETING OF ALL INDIA FOOD PROCESSORS' ASSOCIATION (AIFPA) TO BE HELD ON 13.12.2001 AT KOLKATA

Mr. Chairman, distinguished delegates, Ladies & gentlemen,

It gives me great pleasure to be with all of you on the occasion of the annual general meeting of All India Food Processors' Association and the Seminar on "Potential and Opportunities for Investment in Food Processing Industries in the Eastern and North Eastern States".

At the outset, I would like to convey my appreciation to the All India Food Processors' Association for having chosen this important subject of national importance for the seminar.

The growth potential of food processing industry is enormous and it is expected that food production will double in the next decade with rapid increase in demand for value added food products. The agro products and food processing industry sector is one of the largest in terms of production, consumption, export and growth prospects. However, this is an extremely disorganized sector characterized by the predominance of small and tiny units spread here and there.

West Bengal offers a vast opportunity for the development of processed food industry due to its natural advantage in terms of abundance of raw materials as also the mammoth size of its domestic markets.

The major fruits & vegetable crops produced in considerable quantities in the State are mango, banana, Litchi, pineapple, jack fruit, tomato, papaya, potato, cabbage, cauliflower, chilli etc., which hold tremendous promise for processing. West Bengal is producing about 16.57 lac tons of fruits and 101.29 lac tons of vegetables (Excluding potatoes).

The state is the second largest producer of potatoes in the country producing about 76 lac tonnes of potatoes. In West Bengal crops like mango, banana, pineapple, Litchi, tomato, chilli etc., can be grown in location specific areas exclusively for processing purposes after providing improved quality seeds, planting materials, modern agro technique etc.,

The State Government has given top priority for the development of food processing industries in the State. It has been able to create a suitable and congenial situation to attract entrepreneurs for setting up food processing industries in the State. A number of small, medium and large-scale food processing industries in meat, fish, milk product, fruits and vegetables, mushroom, potato and biscuit have come up. The State has a market of more than 8 million people in Kolkata alone. Besides, there is a main market for 100 million people in Eastern and North eastern Region. It has easy access to Bangladesh, Nepal and Mynamar for exports and booming market in Asia Pacific Region of 500 million people.

Following measures have been adopted by the Government of West Bengal to promote food-processing industry.

01. Production of quality planting materials and seeds in Government farm as well as in private nurseries.
02. Under R & D, demonstration units highlighting the knowhow and technology obtained from Agridev Israel are being set up at Bankura, Purulia and Midnapore.
03. Hybrid vegetable seed production units are being set up at Krishnanagar, Nadia on Joint venture basis.
04. A modern training cum production centre is being set up at Bamanghata, South 24 Pgs.
05. Setting up of Regional Research Station on Sub-tropical Horticulture fruits at Malda under the aegis of ICAR.
06. Agri Export Zones on pineapple at North Bengal, vegetable at Nadia and North 24 Pgs., Mango & litchi covering Malda, Murshidabad are being set up.
07. Basic infrastructure like cold chain facilities for preservation of raw materials are being promoted. This includes

facilities for grading, sorting, pre-cooling and packaging & multi-chambered cold storages at growing areas. Refrigerated or insulated transport system to marketing centers will also be provided for maintaining cold chain.

08. Establishment of food parks / industrial estates in different locations like Siliguri, Malda, Kolkata and other places.

West Bengal offers promising and profitable avenues for private investment in the area of food processing. The area where the State has an edge include mushroom cultivation and processing, dehydrated and canned fruits & vegetables, potato processing, frozen fruits and vegetables, fruit juice and fruit pulps, pickles, ready to serve beverages, squashes, canned vegetables, fruit concentrates, candied & crystallized fruits, tomato products, potato chips and potato powder etc. There is scope for bulk aseptic packaging of the products.

INCENTIVES - Food processing unit can avail financial assistance under the new incentive scheme 2000 of the Government of West Bengal for setting up food processing industries in the State. DFPI, G.O.I., NHB & APEDA also provide financial assistance for the promotion & development of FPI and export of food products.

Food Processing Industries & Horticulture Department, Government of West Bengal will render all possible assistance and encourage efforts of the processors of the State to set up units and export products which have potential.

I understand that this seminar will deliberate on various aspects of food processing industry which, I feel, will certainly benefit food processors and others concerned in the development of food processing industry.

I hope the seminar will come up with practical suggestions and recommendations which will help development of food processing industry in the county,

With these words I wish the seminar all success.

Thank you,

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LIST OF HOLIDAYS OF AIFPA - 2002

DATE	MONTH	DAY	FESTIVAL
12	March	Tuesday	Mahashivratri
29	March	Friday	Dulhendi
15	August	Thursday	Independence Day
22	August	Thursday	Raksha Bandhan
30	August	Friday	Janmashtmi
02	October	Wednesday	Gandhi Jayanti
15	October	Tuesday	Dushera
04	November	Monday	Deepawali
06	November	Wednesday	Bhaiya Dooj
25	December	Wdnesday	Christmas Day

KEYNOTE ADDRESS BY SHIR D.P. TRIPATHI, SECRETARY TO THE GOVERNMENT OF INDIA, MINISTRY OF FOOD PROCESSING INDUSTRIES, AT THE INAUGURAL SESSION OF SEMINAR ON "OPPORTUNITIES OF INVESTMENTS IN FOOD PROCESSING IN EASTERN AND NORTH EASTERN STATES" AT KOLKATA ON 13TH DECEMBER, 2001.

The Eastern and North Eastern Regions hold enormous potential for development of agriculture, horticulture, animal husbandry and fisheries. This huge potential is unfortunately marked by the low levels of productivity and entrepreneurship. The gaps between the actual and potential yields are such that huge production increases can be achieved in the region simply by using available and accessible technologies. The timings and the topic of the Seminar, therefore, could not have been more opportune and the All India Food Processors' Association are to be complimented for selecting this subject of today's discussion in this Seminar at Kolkata. The time has come to fill the gap between production and potentials and to capitalize on the opportunities offered by the region. The immediate need is to raise the level of investment in the region. Public investment by both Central and State Governments will have to show the way particularly in creating and strengthening the infrastructure but simultaneously every effort is needed for attracting private investment to the region and promoting entrepreneurship. It will not be out of place to mention that the improvement in law and order in some of the States of the North East, will go a long way in building the confidence level among the prospective entrepreneurs for attracting private investment in the region.

Before dealing specifically with the Eastern and North Eastern Regions, it will be appropriate to give an overview of food processing sector in the country.

India occupies a pride of place amongst the food producing nations. With a production of 601 million tonnes per annum, it is the third largest food producer in the world. With 88 million tonnes of vegetables per annum, India stands second to China and 44 million tonnes of fruits per annum, it is second to Brazil. It is the largest producer of spices, groundnut, rapeseed and milk and fourth largest producer of wheat in the world. It has one of the largest livestock population, with 53% of buffalo and 45% goat population of the world coming from India. Over 8000 kms of coastline makes it 7th largest producer of fish. In the poultry sector, it is the fifth largest in the world. There is thus abundance of agricultural and horticultural raw-material available in the country. This raw-material is likely to grow further during the 10th five year plan. The milk production of 81 million tonnes is likely to grow by 4.2% and reach a production level of 100 million tonnes by the end of the 10th Plan. Similarly, fish production of 5.65 million tonnes is likely to grow at the rate of 4% and reach at the level of 7 million tonnes by the terminal year of 10th Plan. In the meat and poultry sector also, the production level of 4.6 million tonnes is expected to reach 6.6 million tonnes by the end of the 10th Plan with a growth rate of 4.2%. In the case of egg, the growth rate is expected at 4.7%, the present production of 335 billion eggs would reach 421 billion by the end of the 10th Plan. The production of fruits and vegetable in the country estimated to be around 132 million tonnes is likely to go up by conservative estimates to 185 million tonnes with higher prospects of reaching even to 235 million tonnes by the end of the 10th Plan (Growth rate from 6% to 15%).

Despite this abundance of agricultural and horticulture raw-material available in the country, the food processing sector has not grown and the level of processing in the country has remained abysmally low at approximately 2%. It is estimated that an investment of Rs. 1,40,000 crores across the food chain i.e., production of processable variety of raw material, processing, procurement, distribution and retailing is envisaged if the processing level is to increase from 2% to 10% in the next 10 years. Some of the key factors which have impeded the growth of food processing sector have been:

- Low productivity and low agriculture surplus after minimum domestic consumption requirement and wastage after the farm stage.
- Lack of processable variety of raw-material.
- High wastage due to non availability of cold chain including

cold storage facility. 90% cold storage facility available in the country is for potatoes only.

- Large number of intermediaries involved. Consequently, neither the farmer gets adequate price for his produce nor the consumer gets the value for the price paid. The number of intermediaries involved are 6 to 7 in processing products like fruits and vegetables. This is partially because of poor infrastructural facility. The intermediaries perform the distribution function normally performed by transport companies, commodity processors and cooperatives in other countries. They also arrange credit facility to the farmer. Due to high number of intermediaries, the cost of the final produce goes up making it uncompetitive.
- Inadequate infrastructure like all weather rural roads, reliable power supply, poor communication.
- Restricted domestic and trade policies.
- High rate of excise duty and sales tax on processed food items. While the Central Excise Duty of 16% on processed fruits and vegetable items was abolished in the current budget, the sales tax continues to be high on such items.
- High cost of finance.
- High cost of packaging and poor availability of domestically produced packaging material.
- Restrictive legal provisions pertaining to land ceiling, contract farming, food standards, storage, movement and transportation of food products.

Coming back to the potentials of Eastern and North Eastern Regions, it is of considerable significance that almost all the important horticultural crops grow in this region. These include mango, banana, pineapple, guava, lichee among fruits, potato, onion, tomato, cauliflower among vegetables; chrysanthemum, rose, orchids in flowers; ginger, turmeric, large cardamom, coriander, cumin among spices and coconut, arecanut and tea among plantation crops. The productivity of many of the horticultural crops in this region is much below the national level. This weakness of the region can be converted into opportunity and production levels can be increased significantly to enhance the total production at national level to meet the ever growing demand for horticulture produce. An interesting feature in the region is the climatic variability which provides opportunity to harvest the crop over an extended period.

It is unfortunate the benefits of "Operation Flood" by and large could not reach Eastern and North Eastern India primarily due to the reason that "Operation Flood" was confined to those regions which were better endowed and relatively higher in productivity with the easy access to urban and semi-urban markets. The state of dairying in the Eastern and North Eastern regions is clearly reflected by the fact that there are only about 7,000 village dairy cooperatives in the Eastern region as against almost 84,500 in the entire country. Dairying in the North Eastern region has not progressed at all. The livestock and dairy development programmes have thus not received the impetus they deserve in the region.

In the North Eastern States pig breeding and the popularity of pork provides considerable opportunity for commercial exploitation and thereby improving economy of the area. It is essential that this sector be exploited fully by providing appropriate inputs in terms of genetic material, health coverage, value addition and marketing. Given the right incentives and programmes, this sector can transform the social scenario. Nagaland and Mizoram have done quite well in piggery development. To further boost this activity, indigenous pig breeds need to be improved through crossbreeding with exotic breeds.

The Government of India is implementing a scheme for "Integrated Piggery Development" to strengthen State Pig Breeding Farms and to assist them in genetic improvement.

Fishery is an important activity contributing to the livelihood of rural inhabitants. It is estimated that for every fisherman engaged in primary fishing activity, about four others will benefit from additional employment by way of post harvest operations, marketing and other allied activities. The Eastern and North Eastern Regions hold considerable potential for both inland as well as marine fisheries. The Ganges and the Brahmaputra rivers and their innumerable tributaries constitute a major source of inland fisheries of the country. Similarly, estuarine systems of Eastern India hold considerable promise in fish and shrimp breeding. The North Eastern Region holds considerable scope for upland and cold water fisheries which, however, is poorly developed. The potential for marine fisheries in Eastern India has not been exploited to the extent it has been on the southern and western coasts. Moreover, deep-sea fishery resources can also be exploited by diversification of existing infrastructure, introduction of modern vessels and equipments.

The Eastern and North Eastern regions are extremely well placed to achieve higher production in inland aquaculture. Besides fresh water aquaculture, cold water aquaculture in mid and high altitude lakes, rivers and reservoirs may be exploited. However, these cold water fishery resources remain largely untapped due to lack of developmental and scientific efforts. Coastal aquaculture, mari-culture and ornamental fisheries also provide opportunities for increasing production and income in the region.

It is a pity that the potentials of the Eastern and North Eastern regions in the area of horticulture, livestock and fisheries etc. have not been exploited and the pace of agricultural growth in the region continues to be slower than in the rest of the country. Post-harvest management and poor infrastructure are the major weaknesses of the Eastern and North Eastern regions. Horticultural commodities being perishable are vulnerable to high losses after harvest till these reach the consumer. These losses are much higher in North Eastern and Eastern regions owing to poor post harvest handling infrastructure, unreliable transportation system and inadequate road network. The type of infrastructure needed to ensure equitable returns which are essential for value addition, are grading/packing centers, pre-cooling and cold storage facilities, auction platforms, reliable transportation system and processing facilities. There is need to develop the backward linkages with the farmers through collection centers and forward linkages with consumers through retail sale centers. Adequate infrastructure is also a basic requirement for the development of fisheries such as storage facilities, ice-plants, cold chains, transportation etc. Lack of storage and preservation facilities' has limited the scale of operation.

Marketing, which is the key instrument in the development of agriculture sector, is also disorganized in the Eastern and North Eastern regions. The reason why the poultry production, milk and fish are flowing into this region from outside points to the inadequacies of post harvest management and marketing infrastructure in the region.

Ministry of Food Processing Industries is engaged in creating an enabling environment to attract domestic and foreign investment in the processed food sector. Some of the initiatives taken by the Government to provide a conducive environment for the growth of processed food sector and encourage foreign investment in the sector include:

I. Food processing industry declared a priority area.

II. Almost entire sector is delicensed.

III. Automatic approvals (including foreign technology agreements as per specified norms) is now permitted for foreign direct investment up to 100% of equity of Indian companies, for most products in the food sector. Exceptions being alcoholic beverages and items reserved exclusively for manufacture by the small scale sector, e.g.bakery items.

IV. Foreign equity ownership upto 24% is allowed in case of units manufacturing items reserved for small scale sector.

V. Agro based 100% Export Oriented Units allowed sale upto 50% in domestic tariff area.

VI. Exemption from payment of exclusive duty.

VII. Free import and export of most items in accordance with the Exim Policy of the Government.

VIII. Capital goods are freely importable.

IX. Provisions of soft loans for industries in food processing sector.

X. Subsidy to manufacturing units engaged in processing fruits, vegetables and cereals.

XI. Assistance for establishment of Food Parks in different parts of the country.

Besides providing grants for creation of infrastructure, setting up of units, research and development, person power development, backward linkages and promotional activities, one of the important policy initiatives which the Ministry of Food Processing Industries has taken is the drafting of a National Food Processing Policy. The National Food Processing Policy provides for enactment of Processed Food Development Act and setting up of a statutory authority as Processed Food Development Authority for harmonizing and rationalizing standards for the processed food industry . While food safety will continue to be the part of the PFA under the Ministry of Health, the proposed Food Development Authority shall be the single authority for setting up the standards for processed food industry. The draft outline of the policy as well as the

Act have been finalized, views of the concerned Ministry obtained and it shall be placed before the Cabinet for consideration shortly.

For the North East States, the Ministry under the Mini-Mission Programme on Horticulture Produce, has approved three projects involving an assistance of Rs. 1.50 crores in the North Eastern region. Another three proposals involving an assistance of almost equal amount are also under final stages of approval. In addition, in its scheme of Setting up of Food Parks, the Ministry has sanctioned two Food Parks in West Bengal and one Food Park each in Assam, Manipur, Tripura and Mizoram. The concept is based on locating the activities of food processing in one location or in a cluster and create common infrastructure facilities like multi-chamber cold storage, effluent treatment plants, lab testing facility etc. to be availed of by the food processing industries which are mostly in small or medium sector so as to reduce the cost of common infrastructure. An outright grant upto Rs. 4 crores is available for the common facilities created in the Food Park. Synergy is also being established between the Food Park and Agri Export Zone being set up by APEDA so that the food processing industries being set up in the Agri Export Zone could take advantage of the common facilities being developed in the Food Parks. It is hoped that this synergy will contribute positively to promote exports of processed food products from the country. I understand that APEDA has given in principle approval for setting up of an Agri Export Zone for pineapple in West Bengal. It has further identified prospects of setting up of Agri Export Zones for pineapple, passion fruits and citrus in Tripura, Manipur and Assam. It is hoped that the proposed Food Park and the Agri Export Zones will contribute together to the exploition of the huge potential in the processed food sector in the Eastern and North Eastern region.

Any discussion on the prospects and opportunities in food processing industries in the Eastern and North Eastern States is incomplete without a discussion on the opportunities for the development and promotion of organic foods. The Indian organic food industry is expected to witness a boom period. There is a huge export opportunity for the organic farming industry both in Niche markets as well as main stream markets world over. The organic market size in 2010 would be around US$46 billion in the EU, US$45 billion in USA and US$11 billion in Japan . The major organic products for marketing include dried fruits and nuts, processed fruits and vegetables, coco, tea, spices, herbs, meat and dairy products. There is an excellent scope for organic farming in the North Eastern region. The North Eastern region has also all the potentials to emerge as a major producer and supplier of organically grown tea to the global markets. What is required is:

- Disseminate the know-how on organic farming and organic input to farmers and NGOs
- Establish national or regional standards and regulations for products and reliable independent accreditation and control system
- Ensure good post harvest handling such as cold chain and good infrastructure and logistics at the ports.
- Setting up of modern organic farms
- Market promotion of organic foods in the targeted markets.

Private entrepreneurs should take advantage of the market prospects for the organic food in the developed markets and commit investments in the North East region. The State Governments and Central Government agencies should help the private entrepreneurs wherever necessary to obtain the requisite certification from International Servicing Agencies involved in improving the exports of these items. In the country, APEDA, Coffee Board, Spices Board and Tea Board have been designated as the accreditation agencies.

A new system of VAT in replacement of Sales Tax is to be introduced from April, 2002. The Central Government has already removed the excise duty of 16% from processed fruits and vegetables products. In case the processed food items are also given relief under the VAT either by granting exemption or by keeping the tax level at the lowest bound rate, this will go a long way in the growth of this sector and will set the pace for private investment in the sector.

I am grateful to All India Food Processors Association for giving me this opportunity to share some of my thoughts on one of the important sectors of Indian economy having considerable bearing on rural employment, rural empowerment and overall economic development of the country.

Thanking you,

SPEECH OF SHRI TSERING GYURME, HON'BLE MINISTER OF INDUSTRIES, TEXTILES & HANDICRAFTS, ARUNACHAL PRADESH, AT SEMINAR ON THE "POTENTIAL & OPPORTUNITIES FOR FOOD PROCESSING INDUSTRIES IN THE EASTERN & NORTH-EASTERN STATES" ON DECEMBER 13TH, 2001 AT KOLKATA.

Ladies and Gentlemen:

I am deeply grateful to the organizers of this seminar for allowing me to present my view on the Industrial Scenario in the North East with particular emphasis on Arunachal Pradesh. I am sure with the exchange of ideas amongst us something concrete will emerge. In fact, I look for the day when we from the North East will one day walk shoulder to shoulder with the rest of India, nay, with the rest of the world with heads held high. Today we seem to be miles away from that dream but I, being a chronic optimist, feel that day is not far way.

Let me start with the inherent drawbacks that we have. I will be brutally frank here as there is no point beating around the bush and most of your are aware of the problems, may be more than me. We are situated in the extreme northeast and far away from the main markets. Communication is a major problem with the railways not catering to all the areas and roads being a major problem because of the state of neglect. We do not have enough skilled labour and also some of the raw materials have to be brought from great distance. In addition, power is also not reliable most of the time, though I agree that some states are better placed in this matter. Added to all these we, in Arunachal Pradesh, have our own problems that are peculiar to tribal states. First of all we have the problem of not allowing non-tribals to own lands in areas declared to be tribal areas. Secondly, our suspicion of outsiders does not allow us to encourage majority holding in ventures by outsiders. Lastly , the power scenario in Arunachal Pradesh at this present point of time is not very encouraging.

It's a dismal picture, is not it? However, as I said, I am a chronic optimist. We are taking steps in our area to address some of these problems. We have introduced a new Industrial Policy. It is aimed mostly to attract outside investors. We have tried to correct some of the problems, which I have outlined earlier. As I have indicated, one of the main reasons for the lukewarm response by outside investors to Arunachal Pradesh was the fact that there was no assured return on the investment made in Arunachal Pradesh. This was mainly because non- Arunachalees were not allowed to own their own enterprises and also land for establishment of their industries. This also resulted in difficulties in raising funds. To overcome this problem we have changed the industrial policy. Now an outside investor can have cent percent equity ownership of an industrial unit for a maximum period of 30 years after which such equity holding has to be reduced to 49 percent and the rest can be held by local Arunachalee tribal entrepreneurs or the state Govt. if it considers necessary. In addition we have also allowed holding of land on lease for a period of 30 years which can be extended for a further period of 20 years. With these measures we expect the outside investors will be encouraged to invest in Arunachal Pradesh as Arunachal Pradesh is rich in Agricultural, Horticultural and Plantation produces.

When we talk about Agricultural and Horticultural products we should remember that Arunachal Pradesh is a very big state compared to other North Eastern States and therefore, it has several climatic types.

The Western districts of West Kameng and Tawang are rich in cold weather products like apple and other temperate fruits while central districts like East Siang, West Siang and Upper Subansiri are rich in sub-topic zone products like pineapple and oranges. Therefore, in Arunachal Pradesh you can have a variety of products. However, the problem in Arunachal Pradesh is that these produces are far away from the main market and therefore, the farms find it difficult to sell it in a profitable way. Therefore, sometimes they make distress sales and get a fraction of what they should have got. The only way out is to arrange cold storage facilities or to process the produces in such a manner that they get greater value for a lesser quantity. In this the food processing industry will serve a long way in catering to the demands of the farmers.

I do agree that to establish such industries lots of factors have to be taken into account. However, we have identified some areas, which are nearer to the markets, not far from the farmers, easily accessible and where power can be available. These places are Bhalukpong Tippi in West Kameng District, Banderdewa-Doimukh belt in Papumpare District, Likabali in West Siang District, Pasighat in East Siang District, Roing in Lower Dibang Valley District, Miao in Changlang District and Deomali in Tirap District. The advantages of these places are the ready availability of land for establishment of industrial units, ready availability of raw materials and better communication facilities than the rest of Arunachal Pradesh. Among these I would like to recommend Bhalukpong -Tippi for horticulture products. There are lots of apples, peaches, plums and now kiwi fruits available in West Kameng District. If any body is interested to set up a processing plant in Bhalukpong-Tippi we have got land earmarked for establishment of an IIDC and we can make the land available there. As far as power is concerned in Arunachal Pradesh, the normal power consumption is by domestic consumers only. Therefore, during day time the demand for power is very less and most of the generating units remain idle. The industrial units can utilize this idle power available and we can arrange for concessions for bulk consumers of electricity. I would like to request every body interested in investing in the North East to have a look in these areas also.

In case of other products ginger in one of the many available items in areas like Lower Dibang Valley. The farmers had, in the past, taken up this cultivation and in a big way but are now finding if very difficult to sell it because of the present law and order situation in the state of Assam. Though I agree the law and order situation has improved quite a lot still there are instances where truck loads of ginger have been waylaid and spirited away by unlawful elements. Because of this the farmers sell their products at a very low rate and they do not get what they deserve. If ginger dehydration plants are located in this area I am sure it will be beneficial for all concerned. In addition orange and pineapple produces of East Siang. West Sinang and upper Subansiri are also facing the same kind of problem. A fruit processing plant located nearby the these areas will also help a lot in solving their problems.

I have only indicated some of the areas that require immediate attention. There are also other areas that can be explored. I am sure once some entrepreneur starts the ball rolling there will be lots of others who will be interested to invest in these areas. With these words I would like to thank you all for the opportunity given to me.

JAI HIND

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SPEECH OF SHRI C. LALRINSANGA, HON'BLE MINISTER FOR FOOD & CIVIL SUPPLIES, MIZORAM
AT
THE SEMINAR ON "POTENTIAL AND OPPORTUNITIES FOR FOOD PROCESSING INDUSTRIES IN THE EASTERN AND NORTH - EASTERN STATES"
ON 13TH DECEMBER, 2001
AT KOLKATA

POTENTIAL AND OPPORTUNITIES FOR FOOD PROCESSING INDUSTRIES IN THE STATE OF MIOZORAM

Mr Chairman,

Prof, Chamanlal Gupta,
Hon'ble Union Minister for
Food Processing Industries.

Shri Sailen Sarkar,
Hon'ble Minister of West Bengal
for Food Processing Industries,
Distinguished Guests,
Members of the All India Food
Processors' Association,
Ladies and Gentlemen,

01. A very warm greetings to all of you.

02. I feel privileged to be invited to this Seminar here today and to deliver a Speech on the policies and concessions being offered by the Government of Mizoram to motivate the potential investors in setting up of food processing industries in Mizoram. While doing so, it would be pertinent to share with you my brief experience, as Chairman of the Mizoram Food & Allied Industries Corporation Limited (MIFCO) from 15th February, 1999 to 10th October, 2000, with the development and promotion of food processing industries in Mizoram.,

03. The Agro-climatic conditions of Mizoram are ideal for agricultural and horticulture crops such a Ginger, Turmeric, Chilli, Pineapple, Orange, Passion fruit and various other citrus fruits. Besides, the socio-cultural factors and abundance of fodders also offer suitable conditions for development of diary, poultry and pig products in the state. Most of these items are already produced far in excess of requirements for local consumption in fresh forms. In fact, the only viable option to boost the State's economy is creating infrastructures to increase production and marketing these items outside the state.

Nevertheless, absence of easy and cheap transportation facilities in the state for want of rail-link and other adverse topographical factors undermine economic viability of these highly perishable items for the state. Sale of these items in fresh forms outside the state is virtually impossible due to communication problems whereas the potential and opportunity for sale in processed form can hardly be overemphasized. It is an obvious fact that the state has great potential for developing resource based Processing Industries.

It is an inevitable conclusion that remarkable growth of economy in the State could be brought about by establishment of Food Processing Industries at convenient locations.

With such incentive to sell their crops and veterinary products by easy means also with assistance of the government, the farms' production will increase manifolds which will automatically help growth of the industries.

Such establishments of Food Processing Industries in Mizoram will not only help growth in the farmers' and the State's economy, it will considerably reduce the central government expenditures on subsidy on foodstuffs in respect of Mizoram.

Mizoram Food & Allied Industries Corporation Limited (MIFCO)

04. Just about a decade ago, the responsibility of promoting food processing industries in Mizoram was entrusted with the Mizoram Food & Allied Industries Corporation, a State Government undertaking, which was established on 19th December, 1989. The concept of a Food and Allied Industries Corporation emerged from the

aspiration of the Government of Mizoram to harness the limited resources endowment of the state, and nurture its potential for the welfare and well-being of its people. Agro and allied food industries thus require priority due to their advantage over other sectors of industries as they provide high potential for employment generation per unit of investment, the backward and forward linkages that the development can lead to , the level of demands and capability to absorb and promote local resources, predominantly agricultural and horticulture produce, and the benefits they can provide for the people.

05. With the financial assistance from the Central and State Government MIFCO has taken up various projects for implementation after conducting proper techno-economic feasibility surveys, viz. (1) Food Processing Plant, Sairang, (2) Fruit Juice Concentrate Plant, Chhingchhip, (3) Portk & Poultry Processing Plant, Zemabawk and (4) Mushroom Cultivation & Processing Plant, Chhingchhip. During the current financial year:2001-02 i.e. the last year of the 9th Five Year Plan, MIFCO has undertaken to implement new projects with the financial assistance of the Central and State Government viz. (1) Upgradation / Expansion of Fruit Juice Concentrate Plant, Chhingchhip, (2) Upgradation / Expansion of Food Processing Plant, Sairang and (3) Industrial Food Park at Chhingchhip. Meanwhile proposals for new projects are under way viz. (1) Establishment of post-harvest infrastructure and cold chain for food processing (2) Development / improvement of market, quality control, storage and transport of meat and meat products and (3) Contract Farming. With these projects in the food processing sector the Govt. of Mizoram has committed to improve the economy of the State and thereby bring about higher quality of life and happiness to the people of Mizoram.

Industrial policy of Mizoram, 1989

06. The Industrial policy of Mizoram State was first notified on 15th March, 1989 with a view to give direction to the strategies for industrial development of the State. While announcing the said policy statement, the Govt. of Mizoram had taken full cognizance of the Industrial Policy resolutions of the Govt. of India announced during 1948-1956 and the amendments made thereof during 1973, 1977 and 1993. Considering the nascent state of development in the State the Industrial Policy of 1989 laid accent and production of the local small scale entrepeneurs in order to safeguard the socio-cultural and ethnic identity of the indigenous enterprises of Mizoram. The intention of the Government, while announcing its first Industrial Policy, was not industrial growth per se, but was rather directed towards all-round development in the interest of the indigenous people of Mizoram and towards giving them gainful employment and self-employment opportunities in the industrial and allied sectors. Priority was signed to agro and forest-based industries, handloom and handicraft industries, sericulture industries and electronic industries.

New Industrial Policy of Mizoram, 2000

07. As a result of a policy direction given during the 8th Plan period, significant growth in small scale industries, increase in production, awareness amongst the local entrepreneurs to set up modern small scale industries, availability of technical man-power and improvement in basic infrastructure and agro-based industries are now noticeable in the State. It has been observed that, though there is no lack of finance, lack of locally available resources are the main bottle-necks. Further, resources at the level of the government are also very limited to fund large scale projects through the public sector undertaking. In view of the National Industrial Policy for the North-Eastern region, the Government of Mizoram felt necessary to announce a New Industrial Policy in the new Millennium, 2000 for accelerated industrial and economic development of the State.

08. The main aim of the New Industrial Policy of Mizoram, 2000 is to engineer rapid growth in the state to a sustainable extent. The climatic condition of Mizoram is favourable for cultivation of various kinds of fruits. The condition is also very favourable for poultry and animal husbandry and mushroom cultivation. Hence the State Government will encourage development of these sectors so that raw materials base for food and fruit processing industry, mainly at the level of private entrepreneurship is well developed; and the State Government will assist in establishing appropriate linkages between the growers and the processors.

Concessions offered by the Government of Mizoram

(1) Foreign Direct Investment (FDI) including investment from outside the State

09. Mizoram is economically a backward State inhabited by a distinct ethnic group of people having their own socio-cultural and religious identity. The State Government nevertheless will encourage foreign direct investment and from outside the State with caution and restraint so as to safeguard the socio-cultural identity of the indigenous people of Mizoram. The State Government fully appreciate the policy of liberalization and globalization and the benefits being derived thereof due to in-flow of capital in the industrial sector in our country, and therefore, does not like to lag behind other States to attract investment from outside but will adopt a cautious approach keeping in view the interest of the tribal population of Mizoram. The foreign direct investment and investment from outside the State in the large and medium sectors only in the thrust areas like agro based industries will be encouraged in joint sector with the State PSUs or with local entrepreneurs so as to induce acceleration and establishment of down-stream industries in the State in small scale sectors and generate employment opportunities to the local people. Any such investment proposal has to be submitted in detail to government for consideration and clearance. For an attractive proposal which will contribute to the economy of Mizoram, the government will make the land available to the promoters of such proposal on long term lease basis.

2) Single Window Clearance

A prospective investor should get all his requirement and information relating to setting up of an industry cleared through a single authority. The Department of Industries will offer this single window facility through a Green Channel Committee of officials of all other concerned Departments and the Committee will be headed by the Secretary, Industries.

(3) Incentive Scheme, 2000

From the date the new industrial policy of Mizoram, 2000 will come into force, a new package of incentives which come into force shall remain in operation till such time the State Government gives due notice towards discontinuance of its operation or till amendments are made to the scheme.

(4) State Capital Investment Subsidy

An investment subsidy on the total investment made in plant and machinery shall be provided on a graded scale to the new industrial units. It will be available to both new units as well as to existing units carrying out expansion, diversification and modernization activities.

The graded subsidy will be as under:

Types of Industry	Subsidy eligible in general	Subsidy eligible to Unit set up in the Thrust area.
i) Artisan and tiny scale Units	15% of total capital investment in plant and machinery	20% of total investment in plant and machinery.
ii) Small scale capital units.	10% of total capital investment In plant and machinery subject to a maximum of Rs. 5.00 lakhs	15% of total investtment in plant and machinery subject to a maximum of Rs. 7 lakhs.
iii) Medium scale units	5% on total capital investment in plant and machinery subject to a maximum of Rs. 10.00 lakhs.	10% of total capital in plant and machinery subject to a maximum of Rs. 15.00 lakhs.

(3) Concession on Sales tax

State Sales Tax shall be exempted for a period of 7 years form the date of commencement of actual commercial production. However, for the units set up in the thrust area, the exemption period will be 10 years. Exemptions of Central Sales Tax and Excise duty will be governed by various Notifications / Orders issued by Government of India in this regard.

10. In conclusion, I wish to express my gratitude to the All India Food Processors' Association once again for inviting me to this Seminar. I hope that this Seminar would usher in a new era of rapid growth in food processing industries in India particularly in the Eastern and North-Eastern States.

Thank you,

Wish you all a Merry Christmas and Happy New Year.

SPEECH OF SHRI I. IMKONG, HON'BLE MINISTER OF INDUSTRIES & COMMERCE GOVERNMENT OF NAGALAND DURING THE SEMINAR ON "POTENTIAL AND OPPORTUNITIES FOR FOOD PROCESSING INDUSTRIES IN THE EASTERN AND NORTH EASTERN STATES" ON 13TH DECEMBER 2001 AT KOLKATA*

Ladies and Gentlemen,

At the very outset I would like to convey my sincere appreciation to organizers for having organized this Seminar on "Potential and Opportunities for Food Processing Industries in the Eastern and North Eastern States". The theme of the Seminar is pertinent as all the states of the region are actively seeking investment in the Food Processing Sector. I am sure the deliberations in this Seminar will benefit all the stake holders, and it will bring out valuable suggestions to help the State Governments of the East and North East to formulate suitable policies and programs for the rapid development of food processing industries in the area.

The North Eastern Region comprises 8% of the total area of the country and 4% of the total population. Land to man ratio in the region is very favorable offering immense opportunities for food processing industries. However, due to various geographical and infrastructural constraints, the potential has not been realized to the full except perhaps in the tea industry. The vast variety of fruits and vegetables grown in the area can hardly be matched by any other area. This potential can be realized only if agriculture is modernized with a view to generate a sizeable marketable surplus. The vicious circle of low production of raw materials, poor marketing linkages and low investment in food processing sector needs to be broken; otherwise the development of this sector will remain a dream only.

Some of the factors retarding the growth of this sector are :

- Use of obsolete technology.
- Poor transportation and storage facilities.
- Lack of proper marketing linkages.
- Lack of linkages between processing industries, growers and allied Governemnt agencies.
- Erratic supply of raw materials.

  Absence of testing and certification facilities.
- Lack of modern packaging facilities.
- Lack of technical and managerial expertise.
- Low investment in the pre and post harvest technologies.

The Government of India have identified the entire North Eastern Region as a potential area for the development of Fruit and Vegetable processing industries in view of the congenial geo-climatic conditions for cultivation of a wide variety of fruits and vegetables. Moreover, the entire produce is gown by organic agricultural practices. It is well known that the organic produce has a huge demand in the international market. In short, proper development of this sector can transform the economy of this region.

Nagaland is blessed with favorable growth of flora and fauna. It has abundant variety of herbal & medicinal plants, fruits, cash crops and spices etc. It offers a very favorable set of soil and climate conducive for promotion and cultivation of all varieties of horticulture species. The fruits grown range from the tropical and sub tropical fruits such as citrus, banana, papaya, pineapple, litchi etc to temperate fruits like apple, plum, peach etc. Besides this, passion fruit, bamboo shoot, turmeric, beans of varied types, ginger and chilies of various types are found in abundance.

At present, there are two fruit

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* Read out by Ms. Khrienuo C. Metha, Dy. Resident Commissioner of Nagaland at Kolkata.

and vegetable processing units in the State under the Government sector. Fruit Canning factory at Longnak in Mokokchung district with annual capacity of 200 MT is run by the Horticulture Department. Government Fruit and Vegetable Processing Plant at Dimapur with installed capacity of 5 MT per day was set up as a pilot project under the Department of Industries and Commerce. Both the plants have floundered on account of the lack of technical and managerial expertise and usual inefficiencies associated with the government run projects. There are a few other SSI food processing units in the private sector. They are yet to make a mark due to lack of working capital, uneconomic plant size and lack of marketing capabilities.

The Government of Nagaland is taking various initiatives to address the problems coming in the way of rapid growth of food processing secior in the state. The state industrial policy 2000 has identified this sector as one of the main thrust areas. The policy has provided for a host of incentives for setting up such industries ranging from tax free concessions on power consumption, preparation of project reports and even on employment of local manpower.

In order to expand the raw material base, the State Government has launched a new scheme called Compact Area Development with a view to develop Horticultural crops in a compact area of not less than 25 acres in one location. Altogether 60 such locations are proposed to be developed in the next few years. The Government also plans to set up four cold storages in prospective areas in the next two years. Two cold storages are planned within the current year. We propose to set up a food park with the assistance from the Government of India. The project report is currently under preparation. There is a plan for major expansion and modernization of Government Fruit & Vegetable Processing Plant, Dimapur whereby installed capacity will be raised from the existing 5 MT to 20 MT per day.

Absence of efficient transport facilities to carry raw materials from the field to the processing unit is a major problem because of the distances involved. Most of the horticultural produce is either used for household consumption or disposed of in local market by the roadside. Similarly, marketing of the processed goods is also a major problem. The current scale of production does not justify substantial investment in building and promoting an independent Brand leading to poor marketing linkages. The Government of India has tried to address this problem but the efforts are yet to make any visible impact at least in my state. The NERAMAC has been entrusted with the task of building a common brand for the North East. The role of these agencies calls for a review so that necessary adjustments can be made in their strategies.

Lack of modern packaging facilities in the entire Northeast is a major problem. Kolkata is the nearest center where such facilities are available. In the present competitive environment packaging plays a vital role in generating demand for the product. Packaging in tin containers and glass bottles is out, Tetra pack and aluminum juice containers are in. The test of an entrepreneur lies in his ability to convert threats into opportunities. Therefore this problem should be seen as a huge opportunity for the investors to set up such facilities in the State.

Negaland also offers good investment opportunities in bamboo shoot processing. Bamboo shoots of different varieties are available in abundance in the State. The product has a huge demand in the South East Asian and Western Markets. Investment in ultra - modern processing and packaging technology can be extremely rewarding as raw material for this product is very cheap and competition in the domestic market is nil.

Another potential area of investment is passion fruit processing. Nagaland enjoys considerable comparative advantage in this traditional fruits. Of late more and more farmers in the state and adjoining areas of Manipur hills have taken to the cultivation of passion fruits. Test marketing of passion fruit juice in Kolkata and Delhi markets by the Government Fruit and Vegetable Processing Plant has shown positive results.

Entrepreneurs looking at the export markets may like to exploit the unique advantage of processing and marketing Organic Products of the State. Such products yield a much higher price in the international market, as the discerning consumers there are willing to pay more for purity. Since the volume of production of organic fruits and vegetables is comparatively small, processing will enquire relatively smaller investment.

The State Government will also be very keen to enter into marketing tie ups with exporters and domestic marketing firms for marketing the products of our Fruit & Vegetable Processing Plant, Dimapur and other private units.

Although, the government is trying its best to create an enabling environment for development of food processing sector, these efforts will remain inconsequential unless, the private entrepreneurs recognize the opportunities and decide to make substantial investment in this sector. I appeal to the entrepreneurs gathered here to take advantage of the opportunity and come forward with their investment proposals. I assure you that the State Government will provide all necessary support and assistance.

With these few words I once again thank the organizers to have given me this opportunity to present my views on the subject in this Seminar. I fervently hope that this small presentation will motivate some of the prospective entrepreneurs and investors to take a fresh look at Nagaland as a potential destination for investment in the food-processing sector. The State Government would be glad to furnish any further information you need.

Thank you.

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SCOPE OF FRUITS & VEGETABLE PROCESSING IN NORTH EAST REGION

BY

R. K. Bansal, F & V Expert
Ministry of food processing industries
Govt. of India

North Eastern Region of India grows a number of Fruits and Vegetables, of which pineapple is the most important crop. Pineapple is grown widely and wildly (unorganised) in all the seven States of N E Region. The area and production of pineapple in the 7 states of NE Region and West Bengal are 58,264 Ha and 7,81,288 MT respectively in 1999 - 2000. The present level of processing is negligible due to lack of infrastructure facilities and inadequate transport facilities. The level of processing has not improved inspite of Government efforts. A Pineapple Juice Concentration Plant set up by NERAMAC in Nalkata (Tripura) to process 48 tonnes of pineapples per day has been incurring losses and another similar type of plant planned to be set up by MFIL in Silchar could not take off. Hence, the investment efforts by Government have almost failed and due to these experiences, the private sector is also shy to make investments in the NE Region.

However, taking into account all the existing constraints, it is still possible to use pineapple processing in NE Region as an instrument of industrialisation. Pineapple processing can make a revolution in NE Region provided some steps of improvement in the cultivation of pineapple are taken.

At present, two crops of pineapple are available in NE Region, i.e. May to July (Main crop) and Nov.-Dec. (Lean crop). The period of availability is not more than 75 days. The period of availability for processing is an important factor for economic viability. The other equally important factors are the percentage of juice and the total solids in the juice.

It is also a matter of common economical understanding that the profitability can be improved if the transport cost is reduced. In a peculiar type of Region where transport facilities are inadequate and transport costs are high, it is always advisable to make a product which can reduce the transport costs substantially. The available option, therefore, in NE Region is to process pineapple and convert pineapple juice into pineapple juice concentrate. No other pineapple product is viable. The present juice content of pineapples from the KEW variety which is the main variety grown in the NE Region except in Tripura where it is Queen variety is about 40%. The total solids in the juice are about 10^{0}brix. With these parameters, 16Kg of pineapple can produce 1 Kg of pineapple juice concentrate of about 65^{0}brix. The transport cost thus can be reduced by 16 times. The situation of apples in J & K and HP is similar to pineapple in NE Region. The Apple Juice Concentrate Plants in J & K (initially set up by Cadbury) and H.P. are successful. The same is possible in NE Region but there are other limitations which are mainly: (1) Availability of pineapple is merely for 70 days and hence fixed costs are high as the initial investment for a Pineapple Juice Concentrate Plant of 48 tonnes of pineapple per day with bulk aseptic packing facilities is about Rs. 600 lakhs (2) The juice content and total solids are low which makes a requirement of 16 Kg of pineapple for one Kg of concentrate and (3) Cultivation is unorganised, yields per acre are very low and hence the availability for processing is not assured which results in higher price of procurement.

In order to understand this picture it will be important to illustrate the example of Pineapple Juice Concentration Plant set up by Western Fruits & Vegetables in

SIRSI(Karnataka) in 1994. The price of procurement was Rs. 4/- per Kg, availability for 70 days, initial juice content 40%, total solids 10°brix and the cost of Pineapple Juice Concentrate was about Rs.95/- per Kg. (Rs. 64/- for 16 Kg of pineapple and Rs. 31/- for packing, other overheads, interest and depreciation). The international price of Pineapple Juice Concentrate at that time was around Rs. 55/- per Kg in bulk aseptic packing. The Project was not viable and it was known to the Management before they set up the Plant. However, Management was sure to handle the problem as State Government had assured them that they will be given 250 acres of captive land which was given to them before the project started. They were given an assurance by one Mr JACK Larson- a famous consultant of U.S.A on pineapple that he will ensure that the pineapple will be available for 200 days, the initial solids content of juice will be raised to 15°brix (50% more), juice content to 50% (12.5 % per cent more) and the total effect was the cost of pineapple Juice Concentrate could be brought down to Rs. 55/- (Rs. 40/- on account of Pineapple and Rs. 15/- on account of packing cost and other overheads). The proposal was very lucrative and with possibility of exports, the Management was in a position to claim duty drawback for imported packaging material: The total project was set up on these concepts to produce a natural Pineapple Juice Concentrate with Aroma Recovery facilities, no preservative and excellent packing. The project could have made a revolution in SIRSI area which is a very small area as compared to NE Region. The project still failed because Mr Jack asked for a fee of 5 million US Dollars (Rs. 20.00 Cores at that time) instead of one million US Dollars agreed earlier. The difference of fee was due to the clause of guarantee. The Management was unable to pay his fee, the Project had been set up and incurred heavy losses in the very first year and was ultimately closed.

The whole purpose of revealing the above true story is that (1) if we can increase the per acre production of pineapple in N E Region, (2) if we can increase the availability of season to 200 days by staggering or otherwise (3) if we can switch the KEW variety by QUEEN and increase the juice content and total solids in pineapple (4) if we can diversify the crop pattern and ask the farmers to switch over to pineapple and if we can find another Mr Jack Larson for N E Region to achieve all this in N.E Region , then certainly pineapple processing can create a revolution in N E Region. It is imperative to bring down the cost of Pineapple Juice Concentrate from Rs. 100/- per Kg. in bulk aseptic packing (in existing circumstances to Rs. 60/- per kg (in changed circumstances) which is not impossible. If this happens, the problem of infrastructure etc. will become secondary because then large domestic and International players will see an opportunity and create every thing in the Region, as they are all business - oriented.

At the end, I can only say that pineapple processing alone can create a revolution in uplifting the economic condition of the NE Region provided the parameters of season of availability, price of procurement, initial juice content and total solids in pineapples are achieved.

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AIFPA AWARDS - 2000

KASHALKAR MEMORIAL AWARD - 2000

The Kashalkar Memorial Award was introduced by the Association in 1962 in the name of Shri Y. Kashalkar, a pioneer in Food Processing Industries in India. The award carries a Gold Medal and a Citation. The award for 2000 is conferred on Mr. Sunil Kumar Alagh for his long- standing and exemplary contribution to the Food Processing Industry in India.

Shri Alagh's commitment to the industry started almost three decades ago in 1974, when he jointed Britannia Industries Limited and ever since, there has been no looking back. From Group Product Manager to Managing Director and CEO, he has worked his way up; making significant contributions to the industry as a whole and to Britannia specifically. Mr. Alagh has not limited himself to the company but has also been a part of various prestigious institutions and organizations like IIM (B) as a Member of the Board of Governors, Chairman, Food Processing Committee of FICCI, and currently is Executive Committee Member - India /Pakistan Joint Business Council of FICCI and member of National Committee on Fast Moving Consumer Goods - CII.

Under his visionary guidance and direction, from being only a company making biscuits, Britannia has successfully transformed into a comprehensive food & Beverage Company and is in fact India's No. 1 most admired food brand. Britannia has also featured amongst the Forbes Magazine List (Year 2000) of 300 Best Small Companies in the World. Britannia is the only Food/ FMCG Company from India on this list.

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SOILENDRA KRISHNA MITRA MEMORIAL AWARD - 2000

Soliendra Krishna Mitra Memorial Award instituted by Sh. S.N.Mitra, Chairman of M/s. Mida & Co Pvt., Ltd., Kolkata in memory of his father has been conferred on Mr. Malvinder Singh Bhinder, Managing Director, Agro Dutch Industries Ltd., Chandigarh. The award carries a 10 gram Gold Medal and a Citation.

Mr. Malvinder Singh Bhinder is a man with a compelling vision and a capacity to turn that vision into reality in the face of all odds. He has demonstrated this capacity in all the fields that he has ventured into - be it refrigeration, construction, mushroom growing or processing.

Mr. Bhinder founded Agro Dutch Industries Ltd., at Dera Bassi, near Chandigarh which started commercial production in 1993 with 13,000 tons of mushrooms in the first year. Today, it has grown into one of the largest integrated products of mushrooms in the world with an estimated production of 20,000 tons in the next year. The company now commands 75% share of the mushroom export from India and also accounts for the major share of total mushroom imports into the USA.

Agro Dutch processes about 60,000 kg of mushrooms per day which translates into filling more than 100,000 cans and jars. The plant has a state-of-the-art canning line and is HACCP compliant. With a name for quality and reliability, Agro Dutch products are much sought after by leading companies such as Unilever, Pillsbury, and US Foodservice.

Agro Dutch has also recently launched its own label for mushrooms in the US market under the brand name of "Finesse".

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SUBHKARAN JATIA MEMORIAL AWARD - 2000

Subhakran Jatia Memorial Award instituted by his son, Shri Shiv Kumar Jatia, Managing Director of Asian Hotels, has been conferred on Mr. M.S. Parikh, an expert in the field of Food Processing. The award carries a 10 gm Gold medal, Rs. 5000/- in cash and a Citation.

During his career, Mr. Parikh worked for Unichem Laboratories Ltd., United Breweries -Food Division, Dipy's -Mumbai, Nepal Beverages, Hindustan Lever Ltd., Wimco (India) - Food Division, and then went to East Africa as Group General manager (Projects) to set up a project covering Biscuits, Confectionery, Fruit-Juice and Pharmaceuticals.

On returning to India in 1998, he along with a few other like minded professionals, set up their own venture in April 2001 to manufacture Frozen Fruits and Vegetables near Bangalore. The Unit has already registered sale of Rs. 1.8 crores, mainly on exports to the United Kingdom. The project meets the requirements of a growing demand world wide for safe, fresh and hygienic fruit and vegetable products, free from preservatives. Business strategy is designed in such a way that the products are competitive with international products in terms of price and quality.

Mr. Parikh has made significant contributions to the growth of Food Processing Industries in India while serving in various capacities in different institutions and Associations. This award is a recognition of his services to the Industry.

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NIRULA'S FOUNDATION AWARD - 2000

Nirula's Foundation Award for 2000 has been conferred on Mr. Vijay Kumar Memani of Ganesh Food Products (P) Ltd., Kolkata for his distinguished services to the Food Processing Industry. The Award carries a Gold Medal and a Citation.

Mr. Memani was the first to innovate and introduce traditional seasonal drinks like Thandai and Sharbets which were earlier being made only in households, in returnable bottles which could be placed on the shop shelves. The Indian beverage market in the summer is being increasingly dominated by aerated waters and squashes. However, this trend has been somewhat arrested by Mr. Memani's efforts in marketing the traditional drinks.

The brand name of Mr. Memani's products, "Ganesh" is now a synonym with quality herbal and dry fruit based preparations of Thandai and Fruit Sharbets using all natural ingredients like pure Rose Water, Kewra and Bel extracts. Mr. Memani now plans to popularize traditional Indian beverages on a global scale.

During his tenure as Eastern Zone Chairman of AIFPA, Mr. Memani was actively engaged with the State Govt. of West Bengal and was partly instrumental in getting exemption of Sales Tax on processed fruits and vegetable products for small scale and tiny sector units. Mr. Memani has also sponsored the "Ganesh Food Products Award", being given by the Association every year.

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GANESH FOOD PRODUCTS AWARD - 2000

The Ganesh Food Products Award instituted by Mr. Vijay Memani, Director of Ganesh Food Products (P) Ltd., Kolkata has been conferred on Prof. Susanta Kumar Roy for his distinguished services in the field of Research and Development in Post -harvest Technology of Horticultural products. The award carries a Silver Plate and a Citation.

After getting his Post -Graduate degree in Food Technology from CFTRI, Mysore and Doctorate from Bidhan Chandra Krishi Viswa Vidyalaya, West Bengal, Prof. Sushant K. Roy started his career in 1963 in Metal Box Co. (India) and thereafter, jointed the Institute of Catering Technology and Applied Nutrition, Kolkata. He worked in the Indian Agricultural Research Institute, Pusa for over 30 years in various capacities, finally being the Project Co-ordinator and Professor of Horticulture. Now, as an Emeritus Scientist, he continues to guide many M. Sc. And Ph. D students.

Prof . Roy is well known for his innovation of Pusa Zero Energy Cool Chamber (ZECC) and subsequent development of low cost environment friendly, commercial size cool chamber.

Prof. Roy is a recipient of various Awards and distinctions. He was Past President of Association of Food Scientists & Technologists (India). He has published several research papers and has contributed to a number of books.

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AIFPA PRESIDENT'S SPECIAL AWARD - 2000

AIFPA President's Special Award for 2000 has been conferred on Mr. Debashish Mitra, Head, Global Green Company Limited, Bangalore for his outstanding contribution to the upgradation of facilities for food testing and quality control system. The award carries a Silver plate and a Citation.

Mr. Debashish Mitra was responsible for starting up the Thapar Group's initiatives in the Agro Industry sector and is currently the Managing Director of Global Green Company. Before moving over to Global Green Co., he headed the HR Division of Ballarpur Industries Limited, the flagship Co. of Thapar Group.

Global Green Co. has emerged as India's leading exporter of gherkins and other vegetables to several European, American, Asian and FAR eastern Countries. What is unique in Global Green's achievement is its 'seed to shelf" success. From its current processing of 25,000 tonnes of vegetables, it expects to grow to 1,00,000 tonnes in the next 3-5 years expanding its contract farmer base from 10,000 to 25,000.

Mr. Mitra graduated from St. Stephen's College, Delhi and was awarded the National Science Talent Scholarship at University Level.

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IFP AWARDS

K.U.PATEL MEMORIAL AWARD - 2000

The K.U. Patel Memorial Award instituted in 1971 by M/s Tims Products Ltd., Kolkata is being given annually for the Overall Best Paper published in the "Indian Food Packer" during the calendar year. The Award carries a sum of Rs. 2000/- and a citation.

A.panel consisting of Shri K.L. Radhakrishnan as Chairman and Dr. V.H.Potty, Dr. A.K.Bhatia and Dr. M.M. Krishna recommended that the K.U.Patel Memorial Award for 2000 be given to the paper entitled " Control of browning in white button mushrooms" by Dr. O.P.Ahlawat, R.D.Rai, K.Ahlawat and R.N.Verma of the National Research Centre for Mushroom, Solan, H.P. 173 213 published in the January -February issue 2000 of the Journal.

While selecting the paper for the Award, the Panel observed that mushroom is highly perishable and develops brown colour soon after harvest thus fetching unremunerative returns to the growers. The Authors have developed a simple chemical dipping technique which prevents browning and provides a shelf-life of 3 days at room temperature or 4 days at low temperature. The technique developed will be useful to promote mushroom cultivation even in rural areas.

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N.N.MOHAN MEMORIAL AWARD- 2000

The N.N.Mohan Memorial Award instituted in 1976 by M/s Mohan Meakins Ltd., Ghaziabad is being given annually for the Best Research Paper published in the "Indian Food Packer" during the calendar year. The Award carries a sum of Rs. 2000/- and a citation.

A panel consisting of Shri K.L.Radhakrishnan as Chairman, Dr. V.H.Potty, Dr.A.K.Bhatia and Dr.M.M.Krishna recommended that the N.N.Mohan Memorial Award for 2000 be given to the paper entitled " Studies on the preparation & Storage of Intermediate Moisture Ripe Mango Slices of Dashehari Cultivar" by Jyotsna Mishra and M.C.Tomar of Government Fruit Preservation and Conning Institute, 18-B, Ashok Marg, Lucknow, U.P. published in the March - April 2000 issue of the Journal.

While selecting the paper for the Award, the Panel observed that preserved mango slices ought to have been in the market long ago but still not found due to lack of information to the entrepreneurs. The present study fills up this gap and the method developed by the authors can be followed by manufacturers.

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KEJRIWAL AWARD - 2000

The Kejriwal Award instituted in 1977 by M/s Kejriwal Enterprises, New Delhi is being given annually for the Best Article of Interest to the Industry published in the "Indian Food Packer" during the calendar year. The Award carries a sum of Rs. 2000/- and a citation.

A panel consisting of Shri K.L. Radhakrishnan as Chairman, Dr. V.H.Potty, Dr. A.K.Bhatia and Dr. M.M.Krishna recommended that the Kejriwal Award for 2000 be given to the paper entitled "Standardisation of recipe for preparation of sweet papaya chutney" by G.K.Gupta of Central Institute for Subtropical Horticulture, R.B.Road, O.P.Dilkusha, Lucknow - 226 002 published in the January - February- 2000 issue of the Journal.

While selecting the paper for the Award the Panel observed that raw papaya has so far been utilized only making tuti-fruiti for which the market is saturated. With the standardization of the new recipe for making sweet papaya chutney developed by the author, an additional avenue for value addition to papaya can be exploited with advantage.

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GITS
AWARD - 2000

The Gits Award instituted in 1977 by M/s Gits Food Products (India) Pvt. Ltd., is being given annually for the "Best Paper on Marketing" published in the "Indian Food Packer" during the calendar year. The Award carries a sum of Rs. 2000/- and a citation.

A panel consisting of Shri K.L.Radhakrishnan as Chairman, Dr. V.H.Potty, Dr. A.K.Bhatia and Dr. M.M.Krishna recommended that the Gits Award - 2000 be given to the paper entitled "Consumer Behaviour towards Frozen Fruit & Vegetable Products in India-Market Study" by Mr. P.L.Kaul of Mariental India Ltd., 7/58, South Patel Nagar, New Delhi - 110 008 published in the March-April issue 2000 of the Journal.

While selecting the paper for the Award, the panel observed that the future of food industry is linked to delivering food products with maximum convenience and least cost to the consumer. Freezing is ideally suited for fulfilling the above objective. The author has reported the demand for IQF foods in India. The study covers survey data, industrial status and marketing practices. This data would be a useful guide to prospective entrepreneurs in establishing frozen food units.

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DR. J.S.PRUTHI
AWARD - 2000

Dr. J.S.Pruthi Award instituted in 1997 by Dr. J.S.Pruthi, New Delhi is being given annually for Development of New Products / New Process / New Machinery in Fruit & Vegetable Technology published in the "Indian Food Packer" during the calendar year. The Award carries a sum of Rs. 2000/- and a citation.

A panel consisting of Shri K.L.Radhakrishnan as Chairman, Dr. V.H.Potty, Dr. A.K.Bhatia and Dr. M.M.Krishna recommended that the Dr. J.S.Pruthi Award for 2000 be given to the Article entitled "Development of Alternative Preservative" by Neelima Garg and S.K.Kalra of the Subtropical Horticulture, Rehmankhera, P.o., Kakori, Lucknow - 227 102 published in the July-August 2000 issue of the Journal.

While selecting the paper for the Award, the Panel observed that the article opens up a new area for Fruit & Vegetable Processing Industry to think about an alternative to SO_2 which is increasingly being implicated in allergic health problems. Besides, SO_2 is known to be difficult to remove from fruit pulps completely and imparts undesirable taste. The authors have now developed a new preservative with microbial potential and better acceptability. It opens up good commercial prospects provided it is approved by PFA authorities.

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57th AGM

of

ALL INDIA FOOD PROCESSORS' ASSOCIATION

held on

December 13, 2001

at

Kolkata

REPORT OF THE VICE PRESIDENT, DR. S. JINDAL AT THE 57TH AGM ON 13.12.2001

Dear fellow Members,

1. I have the pleasure to present the Annual Report of All India Food Processors' Association for the period 2000-01.

2. The activities of the Association were carried out through the Executive Committee and various committees formed during the current session.

3. The Executive Committee had four meetings during the period as per details given below:

1. 30.05.2001	DELHI
2. 20.09.2001	MUMBAI
3. 03.12.2001	DELHI
4. 12.12.2001	KOLKATA

Executive Committee Meetings :

1st Executive Committee Meeting on 30th May 2001, New Delhi

The following business was transacted :

(a) Organisation Chart was finalized and approved.

(b) Technical Standard of processed foods received from Directorate General of Sup & Tpt; Timarpur, Delhi for Army purchase were examined.

(c) Proposals regarding FPO amendments aligning with Codex were discussed.

(d) Strees was made to convene Zonal /Chapter meeting quarterly.

(e) Strategy for Union 2001-2002 was discussed.

(f) Strategy for Uniform Sales Tax Proposals for VAT implementation from 1.4.2002 was decided.

(g) Duty Drawback strategy was deliberated..

(h) Brief for Website of the Association was given to members.

IInd Executive Committee Meeting on 20th Sept. 2001 at Mumbai

The highlights of the issues are as under:

1. President informed that the Ministry of Food Processing Industries after the meeting has sent Association's comments on major issues of concern listed below :-

(a) Concern for the imported products.

(b) Harmonisation of Food Laws under various enactments to help industry to produce world matching products.

(c) FPO need to be updated to include innovations and product development.

(d) Codex Standards are not mandatory and need to be only a bench mark like BIS Standards.

2. Food Additives Sub-Committee of CCFS, meeting held on 26th June, 2001. Briefing of the points taken up for discussion in the meeting.

3. Website of the Association and the members advance listing at a nominal value of Rs. 500/-. Website has since been commissioned.

4. List of outstanding -West Zone

List of outstanding of the West Zone deliberated and President requested Zonal Chairman & other members to percuade the industry members to send their subscription without which it is difficult to expand the activities of the Association.

President proposed that for subscription pending for more than Rs. 5000/-, the request letters may be issued to the members under his signature.

IIIrd Executive Committee Meeting on 3rd December, 2001, New Delhi

(a) VAT introduction proposed to be effected from April 2002 efforts made so far were informed to the members.

(b) Preparation about AGM & Seminar on "Potential and Opportunities for Food Processing Industries in the Eastern and North Eastern States", December 13, 2001 at Kolkata- brief given by the Vice-President.

(c) List of outstanding of the North Zone.

(d) Discussion regarding proposed amendment of FPO.

IVth Executive Committee Meeting on 12th December, 2001 Kolkata

(i) Report of the Chief Editor, for Indian Food Packer Awards.

(j) President's announcement of the Kashalkar Memorial Award, S.K.Mitra Memorial Award, Subhkaran Jatia Memorial Award, Ganesh Food Products Award etc. for outstanding contribution to the Industry.

(iii) Nominations received for the position of President, Vice President and Members of the Executive Committee.

4. Committee /Sub-Committees

The Committees /subcommittees set up had a number of meetings and the major issues discussed are given herein below:

Sl. No.	Committee/ Sub-Committee	Convener Chairman	Number of Meetings
1.	Technical Advisory Committee & Expert Panel	Sh. P.P.S Dhillon	3
2	Taxation Committee	Dr. S.Jindal	3
3	Packaging Committee	Sh. Sanjay Bhatia	2
4	Credential Committee	Dr. S.Jindal	4
5	Editorial Board of IFP	Dr. K.L.Radhakrishnan	2
6	Working Committee	Sh. N.M.Kejriwal	3

1. Technical Advisory Committee & Panel of Experts

A panel of experts was constituted this year to examine technical issues and advice the industry and Government on various issues connected with Food Laws, labeling matters and F.P.O. issues. The panel was involved in advising on the matter of "National Policy on Food processing" and Technical issues of Food Laws.

2. Taxation Committee

Memorandum on Pre-Budget for 2002 - 2003 proposal has been submitted to the Ministry of Food Processing Industries with a request to present the case of Food Processing Industries to continue the excise concessions for another five years. The need for low cost packaging materials has also been emphasized.

Dr. S. Jindal worked with Director (F & VP) to prepare the case for Finance Ministry for budget proposals for 2002-2003.

3. Packaging Committee

During discussion on various aspects of Packaging materials and packaging systems. The following issues were highlighted by the members.

(i) Production of indigenous tinplate for OTS Cans.

(ii) Quality Packaging materials must be made available to international standards.

(iii) Upgradation of technology of small scale manufactures of packaging materials and their specification should be improved with suitable technology from Indian Institute of Packaging.

(iv) Need was stressed for developing bio-degradable packaging materials and not to adopt Western Technology not suited us.

4. Credential Committee

President was authorized to approve the membership applications and put to Executive Committee for information. Application of new members during 2000-2001 were considered and approved.

5. Editorial Board of IFP

(i) It has been recommended to have a panel of specialist for specifics inputs to IFP.

(ii) Indian Food Packer is running in loss due to constraints of advertisements on a regular basis. Members were requested to mobilize more and more advertisements from the Industry.

(iii) Further efforts are being made for strengthening the commercial inputs in IFP.

6. ZONAL COMMITTEES

(A) WEST ZONE

Sh. A.M.Pandey, MAIDC on behalf of the Zonal Chairman, West Zone took up following issues;

(i) Members may please bring in issues / copies of Resolutions to be discussed and placed before Central Body for Annual Conference.

(ii) Discussion on FPO notification and the application of PFA on the Small & Medium Scale Industries.

(iii) Scope for setting up of medium/ large scale Cashewnut processing plants in Konkan and the marketing avenues available for.

(iv) Scope for setting up of Food Testing Lab. in Maharashtra i.e Mumbai and Nagpur.

(v) Suggestions on creation of "Food Park" at Butibori in Nagpur District and its contribution in attracting small and medium scale investment in Food Processing Sector.

(vi) Review of issues /activities handled by Nagpur & Pune Chapters.

(vii) Discussion on Application of Indian Law on imported processed foods.

(viii) The National Symposium on HACCP, was organized by us in association with the Food & Nutrition Dept., of the M.S. University of Baroda in the month of August 2001. More than 45 representatives from different food industries and appx. 150 students of Food & Nutrition Deptt, attended this symposium. During the symposium a visit to a HACCP certified unit to give on -line experience to the delegates was organized. During the seminar we have honoured two food industries for achieving first HACCP & ISO certification. One is from Canning industry and another from Pickle industry.

(ix) In the month of October 2001, Vadodra Chapter organized one seminar on awareness of FPO & PFA rules, and invited eminent Lawyers from Surat city to give a brief of the Food Laws. More than 85 delegates attended this seminar. In this Seminar all the vendors, stockists & distributors of food products to increase the awareness of FPO & PFA were invited.

(B) NORTH ZONE

Chairman apprised the members with the following issues;

(i) T.Q.M Training Workshops being organized in various places in collaboration with - Department of Food Processing Industries.

(ii) North Zone outstanding list was very large. Sh. J.S.Srivastava requested members to clear the dues.

(iii) Imported food products must be covered under the PFA regulations.

(iv) The customs authorities must get the samples checked by Food Labs before clearing the consignments.

(v) Customs authorities should implement rules on M.R.P., expiry date and packaging requirements etc.

(vi) The sticker's should not be allowed. This is grossly misued. Infact MRP on stickers is not allowed even for Indian Companies.

(vii) F.P.O. should be mandatory for imported goods.

(C) SOUTH ZONE

(i) A Couple of meetings related to raw material pricing and fixing the minimum slab prices for the finished products were organized.

(ii) Represented and participated in various meetings called by the Government of Karnataka on Food Processing Polices for State and establishing Food Parks.

(iii) There was a membership campaign and enrolled about 15 new members into the association.

(iv) The Industry has welcomed and appreciated the efforts of AIFPA in abolishing the central excise on processed foods through letters and other messages.

(v) To consider the outstanding dues of the Members of the South Zone.

(vi) Zone attempted to regulate the mango prices. It was proposed to set up a Mango Crop Fund.

(vii) The exemption of Central Excise Duty should be continued and all the State Government should be advised to give additional concessions on commercial taxes and agricultural cess to this sector to improve the performance of food processing industries by and large.

(viii) Two T.Q.M. seminars were conducted, one at Chittoor and other one at Krishnagiri.

(D) EAST ZONE

(i) The PFA specifications for Chutney and Sharbat were discussed.

(ii) Sh. Budhiraja raised the issue of FPO licensed capacity limitations and wanted the review of this provision of F.P.O.

(iii) Utilisation of existing

Association place was discussed.

(iv) It was decided to request the President to hold AGM and Seminar at Kolkata in December 2001.

"INDIAN FOOD PACKER"

(1) A total number of 34 Research and Review Papers were published in the 6 issues. Besides, a number of articles of general interest were also published.

(2) The revenue received from subscriptions and advertisements in "Indian Food Packer" (bimonthly Journal) during the last three years is as under :-

Year	(In Rupees)
1998-1999	2,11,687
1998-2000	2,28,658
1998-2001	2,59,973

An amount of Rs. 1,41,059 on account of advertisements in Indian Food Packer during last 3 years not recoverable has been written off in this year's accounts.

(2) A Committee with Shri K.L.Radhakrishnan, Chief Editor as Chairman, Dr. M.M.Krishna, Dr. V.H.Potty, and Dr. A.K.Bhatia as members has been constituted to make recommendations for Indian Food Packer awards for 2000.

DAYANAND MEMORIAL SCHOLARSHIP

Dayanand Memorial Scholarship was instituted in 1984 with an amount of Rs. 40,000/- kept in Fixed Deposit. Two scholarships of the value of Rs. 150/- per month each are given to deserving students of Government Fruit Preservation and Canning Institute, Lucknow. This scholarship for 2000 has been given this year.

MEMBERSHIP

The membership of the Association at the time of last Annual Conference held on 21st December 2000 stood at 413. The Association had no option except to strike off constant defaulting ones. The present position as on 31st October, 2001 is as under:

Corporate Members.	6
Ordinary	320
Honorary	8
Individual	48
Associate	45
Total	427

We note that serious situation is arising by non-receipt of dues timely from members. The position of Outstanding upto November 2001 for the last 3 years. I.e 1999 -2000-2001-2002 is as under;

Zone	Amount 1999-2000	Amount 2000-2001	Amount 2001-2002
North	1,48,500	97,265	1,53,100
South	75,000	71,200	65,000
East	58,600	26,610	76,000
West	1,88,800	90,800	1,25,400
Total	4,71,800	3,85,875	4,19,500

Your Association participated in many important events/seminars etc. organized by APEDA, CII, PHD Chamber of Commerce and Industry, FICCI, CIFTI, Assocham, FIEO, Foreign Embassies and High Commissions and others.

The annual membership fee of the Association continues to be based on annual turnover. The details of the membership fee are given hereunder:-

Admission Fee

Annual individual membership	Rs. 500/-	Rs. 250/-	
Annual turnover upto	Rs. 20 Lacs	Rs. 1,000/-	Rs. 250/-
Annual turnover upto	Rs. 50 Lacs	Rs. 1,600/-	Rs. 1,000/-
Annual turnover upto	Rs. 1 Crore	Rs. 2,400/-	Rs. 1,000/-
Annual turnover upto	Rs. 2.5 Crore	Rs. 4,000/-	Rs 1,000/-
Annual turnover upto	Rs. 5 Crore	Rs. 5,600/-	Rs 1,000/-
Annual turnover upto	Rs. 10 Crore	Rs. 8,000/-	Rs. 1,000/-
Annual turnover upto	Rs. 10 Crore	Rs. 10.000/-	Rs. 1.000/-

REPRESENTATIONS

In order to concretize the role of A.I.F.P.A., the Dept.. of Food Processing Industries was requested to take steps on the following issues in direct participation by the Association:

1. Department of Food Processing Industries was requested that a Data base of the F & V products must be created in the Department which should include;

a. Production of F&V products

b. Imported Food Stuffs, (items, quantity, value, source etc.)

c. Directory of Food Machinery Manufacturers.

d. Secretary, Ministry of Food Processing Industries has proposed that, AIFPA may take up the work of Data Collection with the support of Food Processing Industries.

2. Issues relating to the following were taken up with concerned authorities

a) Most imported food products are not as per Indian Laws PFA, FPO, Packaging commodities Act. etc.

b) Natural Food Colours for Food

Products to be developed.

c) Labelling Provisions under PFA rules and standards of Packaging material.

d) Irradiation provisions under PFA rules 1955.

e) Use of Artificial Sweetners in Beverages.

PRESS / COVERAGE/PUBLICITY

The Food Processing Industry, a thrust area for export is attracting large foreign investments. The foreign media has played a key role to motivate foreign investors to make investment in this sunrise sector. Similarly, Indian press prominently covered the Status and opportunities in Food Processing Industry. All India Radio and T.V. programmers have continued to highlight this area of national activity.

Apart from the nodal Ministry, Ministry of Food Processing Industries, AIFPA, continued to get full support of different Ministries & Departments such as Ministry of Commerce, APEDA, Ministry of Agriculture, I.C.A.R., National Horticulture Board, Ministry of Health and Family Welfare, Planning Commission, Ministry of Civil Supplies and Public Distribution, CFTRI, CSIR, etc.

Ministry of Food Processing Industries have been assisting in the activities of the Association for the development of Food Processing Sector. The Association always had an easy access to the Ministry's Officers and got all support from the secretary, joint Secretary, Director (F &VP) and all other connected officials.

We had a very close interaction with National Chambers of Commerce and Industry in India and served on their various Committees. FICCI (CIFTI), CII, Assocham, PHD Chamber of Commerce & Industry are associated with us on all issues relating to Food Processing Sector.

Our special thanks are due to Sh. D.P.Tripathi, Secretary, Dept. of FPI, Sh. Omesh Saigal, Chairman, Task Force (FPI), Mrs. Vibhapuri Das, Joint Secretary, Sh. K.K.Vyawahare, Director, Sh. A.K.Goyal, Deputy Secretary, Sh. G. Venkataramani, Director and other officers and staff.

Sh. D.P.Tripathi has taken over as Secy. Deptt. of Food Processing Industries and we welcome him. Our profound thanks & welcome are to Prof. Chamal Lal Gupta who has taken charge as Minister of State of F.P.I. and is taking keen interest in the issues for food processing. We are thankful to Sh. Deepak Gupta, J.S., Ministry of Health & Family Welfare for response to industry issues. We are thankful to the Deptt. Of Food Processing Industries for funding the T.Q.M. workshops at 10 places in the county.

We look forward to a close cooperation for solving the problems of Food Processing Industries in India. Shri Anil Swarup, Chairman of APEDA, has supported the industry's cause which we value and place on record our gratitude. I am also grateful to all the members and colleagues for their valuable contributions in furthering the activities of the Association.

Profound thanks are due to the President, Members of the Executive Committee, Chairmen and Members of various Subcommittees who spared their precious time to devote to the programmes of the Association.

I also thank the staff of the Association, particularly, Shri K.P. Sarin, Executive Secretary, but for whose hard work and imagination it would not have been possible to work efficiently and pursue various matters at all levels. I am also thankful to Sh. K.L.Radhakrishnan, Chief Editor of IFP for his contribution to continue improving the I.F.P.

The State Governments have been very co-operative in organizing the meetings of the Industry at several places and on behalf of the Association we place on record our deep gratitude to all of them.

I am confident that the new Office bearers will pursue the cause of the Association with great vigour and zeal and evolve strategies to make India's position unique in the Processed Food Sector.

Thank you,

JAI HIND.

LIST OF PARTICIPANTS AT THE 57th CONFERENCE

S. No	Name Sarvashri	Address
1.	B.A.Chanda	Keventer Argo Ltd., Kolkata
2.	Vinod Thacker	Elmac Agro (I) Pvt. Ltd.,
3.	Vinit Mehta	71, P.M.M. Malviya Sarani, Kolkata
4.	S.Bhattachajiee	Neramac Ltd., Guwahati
5.	Rajbir Singh	Alpha Foods & Chemicals (P) Ltd., Kolkata
6.	Surendra Arora	M/s.Ralli Singh Pvt. Ltd., Kolkata
7.	M.C. Tomar	Govt. Fruit Preservation Institute, Lucknow.
8.	V.K.Mishra	Govt. Fruit Preservation Factory, Sikkim
9.	N. Mukherjee	Govt. Fruit Preservation Factory, Sikkim
10.	S.K.Roy	IARI, New Delhi.
11.	J.P.Negi	N.H.B., Gurgaon, Haryana.
12.	S.K.Singh	N.H.B., Kolkata
13.	Ram Naresh	N.H.B., Kolkata
14.	N.M.Kejriwal	Kejriwal Enterprises, New Delhi.
15.	M.R.Dutta	Eastend Engg. Co., Kolkata
16.	S.N.Mukherjee	Soma Food Products (P) Ltd., Kolkata
17.	M.S.Bhinder	Agro Dutch Industries, Chandigarh
18.	A.Rego	Classic Bottle Caps Pvt. Ltd., Kolkata
19.	Ratan Lal Gupta	Rachana Food Products Pvt. Ltd., Kolkata
20.	Sambit Saha	Business Standard, Kolkata.
21.	Somitra Bhattacharya	Food Technologist,
22.	S.K.Roy	Keventer Agro Ltd., Kolkata
23.	J.K.Das	Mida & Co., Kolkata
24.	Sumit Deb	Metro Dairy, Kolkata
25.	S.K.Paul	FPI & Health Dept., Kolkata
26.	V.L.Thanga	MIFCO Ltd., Aizwal
27.	R.Bhattacharya	Precious Fruit & Food (P) Ltd., Kolkata.
28.	Rohit Pathak	Mc Kensey, Kolkata.
29.	D.Mitra	Global Green Co., Bhubaneshwar.
30.	Viraj Sawney	Mc Kensey-Kolkata
31.	Mahendra Shrivastava	Press -Kolkata
32.	G.K.Gupta	CISH, Rehman Khera-Lucknow
33.	P.Sen	Bax Global India Ltd., Kolkata.
34.	A.Roy	Bax Global India Ltd., Kolkata.
35.	S.Chakraborty	Div. of Agri Industries -West Bengal
36.	S.P.Basu	Dir. of Agri. Marketing, Govt. of West Bengal -Kolkata.
37.	Siba Prasad Sengupta	Dir. of Agri. Marketing, Govt. of West Bengal -Kolkata.
38.	Tamajit Jain	U.N.I. - Kolkata
39.	S.R.Chaudhuri	Kolkata.
40.	Mrs. Khrienuo C. Metha	Dy. Resident Commissioner -Nagaland
41.	R.K.Sen	Sen Enterprises - Kolkata
42.	D.Sen	Sen Enterprises - Kolkata
43.	D.N.Jank	Pasteur Engg Co. Pune
44.	Rajesh Mehta	71 Pt. M.M.Malviya Sarani, Kolkata- 20

45.	Surindar Kumar Budhraja	M/s. Crushers Fruit Juice Co., Kolkata.
46.	R.K.Tyagi	Threes Food Consultant -Ghaziabad, U.P.
47.	A.K.Ghosh	Legend Food Industries - Kolkata.
48.	S.D.Nand	Legend Food Industries - Kolkata.
49.	Supriyo Halder	Aakash Bangla -Kolkata
50.	Akbar H. Mallick	Aakash Bangla -Kolkata
51.	Bidya Shankar	Spices Foods -Kolkata
52.	Uttam Kumar Pal	Ganesh Products (P) Ltd. -Kolkata
53.	P.L.Agarwal	111/1B, Grey Street - Kolkata
54.	A.K.Mehra	DFPI- Kolkata
55.	J. Chakabarti	Central Food Laboratory, Kolkata
56.	Rajiv Dhar	Indian Institute of Packaging -Mumbai.
57.	S.K.Sarkar	Indian Institute of Packaging -Kolkata
58.	A.M.Mitra	MIDA & Co. Kolkata
59.	K.C.De	Consultant, Processed Food, Kolkata
60.	J.Banerjee	Oriental Containers Ltd., Kolkata
61.	S.Bahety	Oriental Containers Ltd., Kolkata
62.	A.Mimani	Ganesh Products Pvt. Ltd., Kolkata
63.	Utpal Ray Chaudhuri	Food Tech., Jadhavpur University -Kolkata.
64.	Sanjay Ghosh	Keventer Agro Ltd. -Kolkata.
65.	J.K.Mitra	West Bengal State Food Processing & Horticulture Dev. Crop. -Kolkata.
66.	S.R.Goopta	Global Agro Enterprises- Kolkata
67.	S. Mukherjee	Mindshare -Kolkata
68.	P.K.Basu	Herald Foods -Kolkata
69.	A.K.Ganguly	Diamond Food Ltd., Kolkata
70.	Rajib Bhattacharya	Arambagh Hatcheries Ltd., Kolkata
71.	S. Talukdar	Pou Chong Bros Pvt. Ltd., Kolkata
72.	Y.W.Lee	Pou Chong Bros Pvt. Ltd., Kolkata
73.	Sandeep Chandra	Continental Crowns & Closures, New Delhi.
74.	A.Bandhopadhyaya	Kolkata
75.	S.S.Dangaih	Glasspack, Kolkata
76.	Sonu Kharbanda	YES Food Ltd., -Kolkata
77.	Shahjahan	Hyacinth Products -Kolkata
78.	William Wang	Thai Cheung Co. Kolkata
79.	S.Mazumdar	Murliwala Agrotech Ltd. -Kolkata
80.	B.K.Bhagat	Kolkata
81.	N.K.Jatin	Kolkata
82.	Rajat Budhraja	Crushers Fruit Juice Co. -Kolkata
83.	Yogesh Budhraja	Crushers Fruit Juice Co. Kolkata.
84.	B. Sibram	Burman Plant &Machinery Co. P.Ltd. -Kolkata
85.	Andrew Sen	Singh Ho Sauce Co. Kolkata.
86.	T.Hossain	National Fruit Processing -Kolkata
87.	Nurul	Nurul Enterprises -Kolkata
88.	Rosal Singh	Alpha Food & Chem -Kolkata
89.	C.H.Wang	Singh Chaung Co. P. Ltd. Kolkata
90.	I.P.Yadav	Export Inspection Agency -Kolkata

91.	Subirthu Chakrobarty	Practiclin -Kolkata
92.	Gagan Mitra	Consultant -Kolkata
93.	Rekeeb Hossain	Hindustan Times -Kolkata
94.	K.L.Gaba	Britannia Food Industries Ltd.
95.	S.K.Alagh	Britannia Food Industries Ltd.
96.	A.Mukherjee	Britannia Food Industries Ltd.
97.	S.N.Biswas	Paul Biswas & Co. (P) Ltd. -Kolkata
98.	Somnath Biswas	Paul Biswas & Co. (P) Ltd. -Kolkata
99.	R.K.Bansal	Ministry of Food Processing Industries, New Delhi.
100.	Bishan Nag	Nag Sweets -Kolkata
101.	K.Patnaik,	Herald Food -Kolkata
102.	Prakash Jha	Prabhat Khabar -Kolkata
103.	Dilip Chenoy	CII-New Delhi.
104.	Gautam Gupta	Central Food Laboratory-Kolkata
105.	Nilanjana Dey	Kolkata
106.	Gray Doeldasde	Kolkata
107.	P.Dar	Studio Grafic
108.	S.K.De	Ajanta N.P.Agency
109.	S.P.Seth	
110.	A.K.Jalan	Glassco (India)
111.	D.R.Sen	Peak Chemical Indus. Ltd., Siliguri
112.	B.N.Das	K.C, Das, Kolkata
113.	Manoj Kr. Singh	Khas Khabar-Kolkata
114.	T.K.Mitra	Mida & Co. P. Ltd., Kolkata
115.	Digambar Bandopadhayay	Rainbow News -Kolkata
116.	Manendra Shah	Kolkata
117.	Dipak Kr. Mitra	Mida & Co. Pvt. Ltd. Kolkata
118.	Prof. Sunit Kr. Mukherjee	Jadavpur University -Kolkata
119.	Vikas Kapoor	Classic Co. -Kolkata
120.	Vishnu Parasramka	Haldiram -Kolkata
121.	Saikat Ray	CMS -Kolkata
122.	Imran Sadique	Clariun Shipping -Kolkata
123.	Dhiren Desai	Welcome Agri Express -Kolkata.
124.	Hashim Desai	Welcome Agri Express -Kolkata
125.	N.R.Dhandhram	Purushottam Agencies -Kolkata
126.	U.K.Talapatra	Aditya Agro Foods Co., Patna
127.	Sandip Nowlakha	Jiggies Food Services P.Ltd-Kolkata
128.	S.N.Mitra	Mida & Co. Pvt. Ltd., -Kolkata
129.	Ashim Kr. Mitra	Mida & Co. Pvt. Ltd., -Kolkata
130.	Gokul Patnaik	AIFPA
131.	S. Jindal	AIFPA
132.	K.L.Radhakrishnan	AIFPA
133.	K.P.Sareen	AIFPA
134.	Shankar Sharma	AIFPA
135.	Rajat	AIFPA

57TH ANNUAL CONFERENCE & SEMINAR ON 13.12.2001 AT KOLKATA

Sh. Sailen Sarkar, Minister of F.P.I, West Bengal lighting the lamp.

Sh. D. P. Tripathi, Secretary, MFPI light the lamp

Sh. Omesh Saigal, Chairman, National Task Force on Processed Foods lighting the lamp.

Sh. Gokul Patnaik, President, AIFPA lighting the lamp.

ALL INDIA FOOD PROCESSORS' ASSOCIATION
57th ANNUAL GENERAL MEETING
NATIONAL SEMINAR ON

Sh. Gokul Patnaik, President, AIFPA giving the welcome address.

Sh. Sailen Sarkar, Minister of West Bengal delivering his address.

A.I.F.P.A.
DEL
INDIA
SERVE & DESERVE
ALL INDIA FOOD PROCESSORS' ASSOCIATION (ESTABLISHED-1943)

Sh. D. P. Tripathi, Secretary, MFPI delivering the keynote address.

ALL INDIA FOOD PROCESSORS' ASSOCIATION
57th ANNUAL GENERAL MEETING
AND

Sh. Gokul Patnaik presenting memento to Sh. Sailen Sarkar

ALL INDIA FOOD PROCESSORS' ASSOCIATION
57th ANNUAL GENERAL MEETING
SEMINAR ON
for Food Processing
and North Eastern States
FOOD PROCESSING INDUSTRIES

Sh. Gokul Patnaik presenting memento to Sh. D. P. Tripathi

57th ANNUAL GENERAL MEETING
AND
EMINAR ON
In the Ea

Sh. Gokul Patnaik presenting memento to Sh. Omesh Saigal

ALL INDIA FOOD PROCESSORS' ASSOCIA

Sh. Gokul Patnaik presenting memento to Sh. Rajiv Dhar, Director, IIP.

ALL INDIA FOOD PROCESSORS' ASSOC
57th ANNUAL GEN
NATIONAL

Sh. Gokul Patnaik presenting memento to Sh. R. K. Bansal from MFPI.

ALL INDIA FOOD PROCESSORS' ASSOCIATION
57th ANNUAL GENERAL MEETING
NATIONAL SEMI ON

Sh. J. P. Negi, M. D., NHB with dignitaries after receiving memento.

ALL INDIA FOOD PROCESSORS' ASSOCIATION

Sh. Gokul Patnaik presenting memento to Sh. Dilip Chenoy, Director, CII.

Sh. Saigal discussing with Sh. Sailen Sarkar, Minister of FPI, West Bengal.

WITH MIN.OF FOOD PROCESSING INDUSTRIES, G.O.I)
DEC 13th 2007 KOLKATA

Sh. Sailen Sarkar, Minister of FPI West Bengal discussing with Sh. Gokul Patnaik.

ALL INDIA FOOD PROCESSORS' ASSOCIATION
57th ANNUAL GENERAL MEETING

Sh. Sailen Sarkar presenting Kashalkar Award to Sh. Sun. Alagh, MD, Britannia Industries Ltd.

ALL INDIA FOOD PROCESSORS' ASSOCIATION

Mr. Vinod Thacker receiving Subhkaran Jatia Award on behalf of Sh. M. S. Parikh.

ALL INDIA FOOD PROCESSORS' ASSOCIATION
57th ANNUAL GENERAL MEETING

Sh. Malvinder Singh, MD, Agro Dutch Industries Ltd., with dignataries after receiving S. K. Mitra Award.

ALL INDIA FOOD PROCESSORS' ASSOCIATION
57th ANNUAL GENERAL MEETING
NATIONAL SEMINAR ON

Brother of Sh. Vijay Mimani receiving Nirula Foundation Award on behalf of Sh. Mimani.

ALL INDIA FOOD PROCESSORS' ASSOCIATION
57th ANNUAL GENERAL MEETING
NATIONAL SEMINAR

Mr. Devashish Mitra Head of Global Green Co. receiving President's Special Award.

ALL INDIA FOOD PROCESSORS' ASSOCIATION
57th ANNUAL GENERAL MEETING
NATIONAL SEMINAR ON

Dr. S. K. Roy, Emeritus Scientist, IARI receiving Ganesh Food Products Award.

ALL INDIA FOOD PROCESSORS' ASSOCIATION
57th ANNUAL GENERAL MEETING
NATIONAL SEMINAR ON

Special Memento presented to Sh. S. N. Mitra, Chairman, Mida & Co.

ALL INDIA FOOD PROCESSORS' ASSOCIATION
57th ANNUAL GENERAL MEETING
NATIONAL SEMINAR ON

Dr. G. K. Gupta, Scientist receiving IFP-Kejriwal Award.

ALL INDIA FOOD PROCESSORS' ASSOCIATION
57th ANNUAL GENERAL MEETING
NATIONAL SEMINAR ON

Dr. M. C. Tomar receiving IFP - N. N. Mohan Award.

Dr. S. Jindal, Vice-President, AIFPA proposing vote of thanks

ALL INDIA FOOD PROCESSORS' ASSOCIATION
57th ANNUAL GENERAL MEETING
AND
NATIONAL SEMINAR ON
"Potential and Opportunities for Food Processing Industries
In the Eastern and North Eastern States"
IN COLLABORATION WITH MINISTRY OF FOOD PROCESSING INDUSTRIES G.O.I.

Sh. D. P. Tripathi chairing Technical Session - I

Sh. Ashok K. Patnaik, Principal Secretary, Govt. of West Bengal making presentation.

A.I.F.P.A.
INDIA
EXCELSIOR
SERVE & DESERVE
INDIA FO
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Sh. Sunil Alagh making observations.

Sh. Tsering Gyurme, Arunachal Pradesh Minister presenting his paper.

ASSOCIATION
Industries

Sh. C. Lalrinsanga, Mizoram Minister presenting his paper

Ms. Metha, Dy. Commissioner, Nagaland presenting paper.

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PROCESSING
KOLKAT

Mizoram Minister discussing with Sh. K. P. Sareen.

PROCESSING INDUSTRIES
2001. KOLKATA
D P TRIPATHI

Sh. D. P. Tripathi making concluding remarks.

Sh. Omesh Saigal chairing Technical Session - II

Mizoram Minister interacting with some participants

Sh. Gokul Patnaik with Sh. M. K. Jalan, M.D. of Keventers.

West Bengal & Arunachal Ministers with other dignitaries.

VIEW OF DELEGATES AT THE SEMINAR

PARTICIPANTS AT LUNCH

REGULAR SECTION

NEWS ROUNDUP

Glut in gherkins

The domestic market is flooded with gherkins but international demand has fallen, affecting exports. Indian gherkins face stiff competition globally as there is a bumper crop in other countries as well, which are also cheaper

Exporting gherkins to the US or to Europe is akin to these countries exporting the indigenous 'achar' to our country as every importing country also grows its own gherkins. Notwith standing this, it is big business and quite a lucrative one at that. In fact, India's exports have been steadily climbing since '97-98 when 24,490 tonnes worth Rs. 50.27 crore were exported against 35,242 tonnes worth Rs. 69.86 crore in '99-00.

"India can easily boost exports over the next few years, " says Debashish Mitra, managing director of Bangalore -based Global Green company, part of the $ 20bn Thapar group which is a major exporter of this product. The global consumption of this tasty pickle is about 2.5 million tonnes per annum mainly in North America, Europe and Australia. India specializes in the labour intensive small gherkins, 70 per cent of which is exported to France, 20 per cent to Canada and less than one per cent to USA. There are two main kinds of gherkins exporters : First, the bulk commodity sector who preserve the vegetable in brine and export in HDPE drums. These need further processing into consumer packs such as jars or cans.

Second, the finished product exporters who preserve the product in vinegar flavoured with dill, oregano or thyme in consumer packs for departmental stores and food service companies. Almost 99 percent of gherkins are preserved whole in vinegar or brine while only one percent is chopped up and used as relish. Of the sixteen Indian exporters which include Benzoram Agro Export, Indian Tropical, International Agri Processing, Ravibala (in Tamil Nadu), Global Green, Green Agro Pack, Great Western, Golden Sash, Ken Agritech, Koeleman India, SA Corp, Sterling Agro, Sterling Marketing, Seshasaila, Vishal and Unicorn (Karnataka) and Global Natural Products (Andhra Pradesh), most of the companies fall into the former category with exceptions such as Global Green and Koeleman who export finished products.

However, in July ' 00, gherkins exports suffered a major setback as some major buyers rejected consignments on account of the borer pest infestation in products. Several orders were also cancelled. Says Sanjay Sanghani, president of the Indian Gherkins Exporters Association and managing director of Unicorn Agrotech, "The biggest problem facing the industry now is that of oversupply. There is a tremendous glut in the market now. Our prices have crashed in dollar terms anywhere from 20 per cent to 50 per cent in some cases. For example, recently I received an order from Spain for a product which I was selling at $1.2, now he is asking for 50 cents per kg!.

Another reason for this state of affairs is that last year there was over-production which led to high inventory levels with the processors. Even at low prices there are no buyers, says Mr Sanghani. His company, Unicorn, exports 4,500 tonnes every year. However, Mr Mitra says the problem of falling demand lies only with a few companies. Global Greens' gherkins exports have not been affected. His company exported 15,000 tonnes last year. According to him the problem with the industry is its inability to move up the value chain and inconsistent quality. "Moreover, there are negative duties against India in Europe and the US whereas Turkey and Mexico who also export to these countries pay no duties," he said. Mexico who also export to these countries pay no duties," he said. Moreover, crops in Turkey, Mexico and Madagascar have also been very good and they are giving Indian gherkins a run for their money.

Gherkin cultivation and processing started in India in the early '90s and at present is spread over 19,500 acres in the three southern states of Karnataka, Tamil Nadu and Andhra Pradesh. Although gherkins can grow virtually in any part of the country, the ideal conditions required for growth prevail in these three states where the growing season extends through out the year. It requires adequate water and temperatures between 15-36 degree centigrade and the right type of soil. The crop takes 85 days to reach the required maturity level. Productivity is approximately three tonnes per acre and the best months are from February- March and then from June-August. Says Sanjay Sanghani, " It is a good example of agri extension".

Each company has an agri extension team from 5-25 who identify farmers and then enter into a buyback contract with them. We supply seeds and pesticides and sometimes even fertilizers. We do random testing to see that the specified limit of chemicals is not exceeded".

Economic Times *10.09.2001*

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Bengal seeks pvt participation in pineapple export zone

The West Bengal Government has decided to set up an agricultural export zone for pineapple in north Bengal with private sector participation as also cooperation from the National Horticulture Board and Agriculture and Processed Food Products Export Development Authority (APEDA).

According to Mr A. Pattanayak, Principal Secretary, Food Processing Department, a mother processing unit may be set up either at Siliguri or Jalpaiguri. "Expression of interest for the proposed unit would shortly be invited from private corporates, " he told Business Line, after the 44th AGM of Eastern India Oil Industry & Trade Association here on Saturday.

The cost estimates suggest that an investment of around Rs. 40 crore would be required to install the mother unit alone. The unit would have the capacity to process pineapple produced by Darjeeling, Jalpaiguri and West Dinajpur districts, he added.

As per the feasibility studies, the pineapple export zone would require four to five pre-cooling plants close to farms. Private sector participation would also be invited for such plants. The State Government, besides extending research and development and training facilities, would also provide special incentive for the export zone project.

The State Government was also planning to facilitate export zones for mango and litchi. "The mother plant for the project could be located at Malda. The Jadavpur University and ICAR's subtropical research unit would be involved in the technical aspects of the project. Currently pre and post-harvest protocols are being tested and the phyto-sanitary aspects are being looked into, " he said.

The Centre had recently cleared the State's proposal to set up the third export zone for vegetables. "West Bengal is the country's largest producer of vegetables. The proposed export zone could be located in either of the two districts of Nadia and North 24 Parganas."

For utilizing the potential in rice bran oil, the State has decided to launch a scheme under which outdated huller mills would be transformed into modern sheller mills. The modern mills allow bran extraction from rice. "The scheme will first be implemented in Burdwan district with funding from the Central Government and banks".

West Bengal has 19 solvent extraction plants with an installed capacity of 1,450 tonnes per annum. Owing to scant availability of bran, capacities have remained under-utilised.

Mr Pattanayak further stated that four organized flower markets were being set up along with a cold chain facility and indicated a fourth export zone in the State for floriculture.

Business Line *00.09.2001*

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MNCs find the going tough in branded atta market

Pushing a brand to customer who makes his purchases with his eyes closed. Partnering with a retailer who doesn't want to stock your bulky product. Grappling with an established competitor at virtually every street corner. Sounds like a marketer's nightmare, doesn't it? Obviously not to the MNCs who have steadily been entering the branded atta market (estimated between 2.3-3 lakh tonnes and valued at Rs. 400-600 crore) in the last few years. And after quiet country-wide rollouts, they are now set for a national challenge.

The key contestants that went national this year are the US- based ConAgra (Agro Tech Foods in India) with its Healthy World Atta. And Cargill Foods with Naturefesh Atta. Even the oldest player in the game, Shankti Bhog Ata, is aiming to go national by March 31, 2002. HLL had launched Annapurna Atta nationally way back in 1998. While branded atta makers appear to be on a roll, the customer remains unimpressed. An Agro Tech Foods spokesperson elaborates on the challenges: " Changing the customer habit from *atta chakki* to branded atta, meeting the regional tastes and hitting a friendly price point" Also getting the customer to ask for atta by brand name.

While most brands are advertising on the taste, nutrition and hygiene plank, Parag Rastogi, consultant at KSA Technopak, says, " There is no USP that a branded atta can really claim." There is little differentiation in terms of content, packaging or technology.

And no seller can afford to differentiate on price. While sourcing wheat has all the risks involved (vagaries of weather and government mop-ups), even a Re 1 hike in selling price can send the customer shopping.

Atta makers are already facing these odds. With the government picking up MP sharbati variety this season, wheat has become scarce. While manufacturers may buy at a premium, they cannot pass on the costs to the customer. Industry sources say this explains the "Partnership Project". HLL has initiated with Rallis India and ICICI in MP. With ICICI providing finance and Rallis giving technology to farmers, HILL is all set to mop up wheat from the region.

And then there is the retailer, reluctant to stock the low-margin, big-bulk product, to take care of . KK Kumar, CMD of Shakti Bhog Says, "To build brands, MNCs are giving heavy discounts at the retail level. However, the shop-keepers are merely ripping open the bags and selling the lose atta at higher rates".

Are the atta makers fazed? Kumar is actually a happy man. "With MNCs coming and awareness levels rising, we have tripled our sales in the last three years, growing to Rs 150 crore, " he says. In any case, there is no foreign technology threat. Kumar claims HLL got Annapurna Atta ground at his plant for the first six months. Even today, most MNCs, including HLL and Cargil Foods, are outsourcing supplies.

The MNCs are upbeat too. This despite Rastogi saying that all MNCs are making losses and will do so for at least 3-5 years. It is the sheer size of the market that is spurring them on. While branded atta is guesstimated to be less than 5 per cent of the total consumption currently, Kumar says ORG estimates the market to be Rs 15,000 core by 2005.

Time of India *11.09.2001*

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Green signal to 3 agri export zones

The Centre has cleared the proposal for setting up first three agri export zones (AEZs) in West Bengal, Karnataka and Uttaranchal in partnership with the private sector. Proposals for another two dozen AEZs are being processed.

West Bangal AEZ would be for pineapples, Karnataka gherkins and Uttarnachal litchis. The three AEZs would entail an investment of around Rs.60 crore.

"There would be an incremental export of over Rs. 250 crore in five years," Agricultural and Processed Food Products Development authority (Apeada) chairman Anil Swarup told Business Standard.

MoUs between the Centre and the state governments for setting up AEZs, announced in this year's Exim policy, are expected to be signed by the month end, he added.

Business Standard *11.09.2001*

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France ready to invest in food processing industry

France is willing to invest in food processing industry and India should facilitate the process by reducing the level of taxes, said Mr Andre Lajoinie, president, committee on production and trade of French National Assembly. Lajoinie who met the union minister of state for food processing, Chaman Lal Gupta in Capital on Wednesday night along with a delegation of members of his team said that france will be willing to invest in liquor industry. Different species of grapes are grown in France and the industry has developed new liquor catering to local tastes. As India has a good production of grapes, French industry will be willing to exploit the situation. He said that France has developed a technology to store apple round the year. He said that France will also be interested to enter joint ventures for producing biscuits. He said that in France the consumption of biscuits is quite high. Food habits are fast changing in France and people are opting more for convenience food which can be cooked easily and processed foods. Gupta said that India will be willing to render all fiscal incentives for setting up of foreign joint ventures in the country.

Indian Express *14-09-2001*

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Global food chain poses challenge for WTO talks

Food has never been so complicated. With a global reach that spurs protesters from Seattle to Genoa to cast a shadow over World Trade Organisation (WTO) efforts to launch a new round of talks this year, food has also made life harder and harder for the negotiators.

A deal to conclude the last round of world trade talks, under the Uruguay Round of the General Agreement on Tariffs and Trade (GATT), was delayed several years until 1994 as Europe and the US fought over agricultural issues.

But if food trade negotiators thought they had a tough time in the early 1990s, they may be in for an even rougher ride now. In recent years, boosted by GATT, the food chain has gone global in a huge way. At the same time, the food system has grabbed a lot of headlines and jointed consumers with what they've seen.

The nightmare of 'mad cow' disease or BSE, which emerged in Britain in 1986, was followed by this year by an outbreak of foot and mouth disease. Mountainous pyres of animal corpses blackened English skies as the authorities sought to contain it.

Genet ically modified (GMO) grains, fruits, and vegetables multiplied throughout the developed world. In Africa and parts of Asia, hunger still haunts the land.

The images have cast a spot light on the food chain, an industrial system that would just as soon go on doing its job away from the glare. But those days may be over".

"Nowhere in the world , as far as I know, is the need for negotiation of agriculture disputed.' The WTO Director -General, Mr Mike Moore, said in a plea to the WTO Council in July after efforts to shape a food trade agenda failed. "But nowhere else in the world, if not here, is that negotiation going to happen," he said.

WTO food talks have centered on long-held differences between the US, Europe, Japan, developing nations and poor countries on farm subsidies, export subsidies, market access, the environment, labour issues, food security and food safety.

But disputes still boil down to national interest, good science versus bad science, and good faith versus bad. "We are still far from agreement," Mr Moore said.

His predecessor, Mr Peter Sutherland, warned that the WTO's credibility was at stake leading into its next ministerial meeting in Qatar in November . "Those countries that are dragging their feet on defining the nature and objective of the mainstream agricultural dossier in a new round must now engage seriously," Mr Sutherland told London's Financial Times recently. "The current regime is quite adequate to meet any justified public health or environmental agenda, "he added.

With the debates heating up, it is worth a glance at the system behind the issues. As an industrial system, the food chain is corporate and thus subject to the basic pressures of consumers for quality and shareholders for returns. That in itself may present a certain agenda, if not a reality check, for WTO negotiators.

The food system's struggles are with issues and context. The issues - food safety , the environment, market access, corporate power, government's role-are old, not new, what is new is the expanding global context of the food system.

Today a store in New York might feature orange juice from Brazil, water from France, pork from Denmark, a banana from Guatemala. Ingredients are globally sourced, locally mixed, globally distributed.

When one link is shaken, the whole chain rattles. "With growing interdependency, shifts in consumption can have major impacts on food markets through out the world", said the US Agriculture Department's Economic Research Service in a report on world food trade in June, 2001.

That is the touchstone for food corporations : consumption. The consumer is king. This makes food safety and price the top issues, with "social" issues only as relevant as consumers-or shareholders-demand.

So any WTO measures addressing food safety and price are the ones most likely to affect growth in food trade and investment. Food safety issues remain clouded by whose science one believes. From bovine growth hormones to GMO foods, culture and science have clashed from the US to Europe to Asia.

Business Line *14.09.2001*

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Food brands open war chests to fight the grocer

It will some day be remembered as the Great Battle of Aisles as global food brands consolidate power to take on the growing might of the world's biggest grocery retail stores.

Consider this: Between June 2000-01, the global food industry has done merger deals worth more than $70 billion. From General Mills buying Pillsbury to PepsiCo acquiring Quaker Oats, major food companies are on an acquisition spree. To put that number in perspective, the value of all food industry mergers combined totaled only $50.1bn between 1995-2000.

But corporate power is getting equally consolidated in the global food retail market, which is estimated at $2.8 trillion. The world's top 32 grocery retailers today account for almost 35 per cent of all sales. Out of this, the top 10 grocery retailers account for about $513.7bn or 54 per cent of what these 32 retailers sell. It is being widely predicted that only half dozen global food retailers or fewer - will ultimately survive current consolidation trends. In the US alone, the top five food retailers are learnt to control more than half of all commodity volume. Over the last five years, the top three grocery retailers (Wal- Mart, Carrefour, and Ahold) have collectively done global M&A deals worth over $50 million.

While R & D labs search for the next Snikers Bar and ad agencies struggle to find another Whassup, the global food and grocery industry is discovering that the easiest way to raise revenues, value and fighting power is by buying them.

Moving at almost a frenzied pace the global food and beverage industry has posted record-breaking levels of consolidation over the last one year.

Industry watchers say the current run of M&A in the international food industry are based on the principles of placing a company in faster-growing food categories and expanding in geographic areas where they are weak.

But the desire of the big to get bigger is not all. A crucial motive behind M&A now is food companies trying to be better prepared to counter the simultaneous consolidation of the global grocery industry.

"People are obviously acquiring to get bigger, but the mergers are more to wield strength with respect to mega-retailers and maintain shelf space. Companies are getting bigger to defend their brands", sources said. "Infact, in order to wield clout with these mege-retailers who have the power to deny your best products the chance to be seen by consumers, food and beverage companies today have no option but to stake claim to the biggest, best -selling brand names," they pointed out.

Economic Times *08.09.2001*

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Model supply-chain for food processing formulated

The National Task Force on Food Processing (NTFFP) has laid out a supply-chain management structure "that combines models of corporate like Hindustan Lever Ltd (HLL) and ITC, Cola-majors like Coke and Pepsi and co-operative success stories like Amul from the Gujarat Co-operative Milk Marketing Federation (GCMMF) and 'Safal' from the National Dairy Development Board (NDDB)."

Mr Omesh Saigal, Chairman, NTFFP, told Business line that the model structure would be presented at the first meeting of the task-force here on Tuesday.

The issue is significant as an estimated 40 per cent of fruits and vegetables get wasted due to their perishable nature in the absence of adequate storage and cold-chain facilities.

The model supply-chain parameter involves 'HLC or Handle with Love and Care' techniques involving simple measures like pre-sorting at the farm level.

These techniques include - plucking and trimming fruits at the right time/in the right way, washing, spray -treatment, waxing, burying in the ground and other traditional practices to enhance shelf-life of fruits and vegetables from a few days to a couple of weeks.

Citing Himachal Pradesh's apples as an example he said that HPMC, the marketing arm of the Government, helped the growers by providing packaging material at a minimal cost and even rotten apples were being bought back.

This model can be adapted for different fruits and vegetables from different agro-climatic regions, he said. One modification that the supply chain model introduces into the HP pattern, is that of pre-cooling.

It is erroneous to assume that all fruits and vegetables and other perishable agricultural products need to be frozen to increase their shelf-life to enable efficient distribution, he observes.

"This is true if shelf-life needs to be increased over several months or years. But often, shelf-life can be increased by HLC practices and through suitable packaging and handling technologies. Improved shelf-life can be achieved even through cool stores, as opposed to cold storages."

Highlighting the need to evolve suitable packaging types for fruits and vegetables like-grapes, apples, pineapples, cabbages, carrots, etc. - the NTFFP is planning to have a sub-committee of researchers to come up with suitable, collapsible and reusable packaging material for different commodities.

Recently, the Bangalore-based Indian Institute of Science devised a mobile-cooler that could be used by co-operatives or collective groups of farmers.

The task force, under the Ministry of Food Processing, is also urging the State Governments to evolve food processing parameters for fruits and vegetables from their States.

He said that the model supply-chain management structure would be conveyed to farmers and co-operatives through extension services of the state government. This would cut the loss through wastage by less than 20 per cent, besides reducing the intermediaries between the farmer and consumer. This eventually would improve quality as well as reduce prices at the consumer's end, he concluded.

Business Line *18.09.2001*

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Nabard Okays Rs. 40.56cr for Guj storage project

The National Bank of Agriculture and Rural Development (NABARD) has sanctioned Rs. 40.56 crore for setting up 34 cold storage projects under the credit-linked capital investment subsidy scheme in Gujarat.

This is expected to create an additional cold storage capacity of nearly one lakh metric tonne in the state in one year.

According to the bank , the scheme, which has been introduced to strengthen the post-harvest storage and marketing infrastructure to prevent loss of perishable commodities especially fruits and vegetables, was announced by the government in 1999-2000.

Till date, Nabard in collaboration with NHB has sanctioned Rs.8.30 crore as subsidy for the projects which have since been completed and commissioned in the state, a Nabard press release said. Additionally, the bank has sanctioned a refinance of Rs. 21.08 crore to various financing institutions.

The projects are spread in the Banskantha, Mehsana, Patan, Rajkot, GandhiNagar, Anand, Nadiad and Kutch districts and have set up cold storage facilities for potatoes, onion, fresh vegetables, spices, lemon, fruits and grocery items.

The cold storage projects have used efficient and power saving cooling technologies with multi-chambers with provision for storing variety of agri-products.

The scheme is expected to help farmers, especially small farmers, prevent distress sale to ensure better returns for their produce.

Under the capital investment subsidy scheme being implemented by Nabard, 25 per cent of the project cost is given as subsidy amount and the bank loan extended at concessional rate of interest of PLR plus 1 per cent. The scheme shall be effective up to March, 2002.

Business Standard *18.09.2001*

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French team to visit HP soon

The Chief Minister of Himanchal Pradesh, Prof Prem Kumar Dhumal met the French Minister of Agriculture and Fisheries Mr Jean Glavany in Krishi Bhawan here today and urged him to establish an Agrotec Complex - A Food Industry Science Park in Himachal Pradesh. This park will go a long way in imparting technical knowledge to the farmers as is being done in France. He revealed that Himachal has major horticulture and agriculture produce for which imparting of scientific know-how is must so that value added products can be produced by horticulturists and farmers. In addition there is also a great scope for floriculture in Himachal Pradesh.

Responding favorably to his suggestion, the French Minister assured that a delegation of experts headed by Mr Bemard de Montferrand, Ambassador of France in India will visit Himachal Pradesh soon to find out modalities on the score.

The meeting was attended by the Union Minister for Rural Development, Mr M. Venkaiah Naidu and the Minister for Food Processing, Prof. Chamanlal Gupta.

National Herald *19.09.2001*

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Pvt sector funding sought in food processing sector

Given the levels of investment required for the food processing sector to take off, the Centre wants the states and private sector to share the burden - and has, in fact, sought private sector investment in setting up a cold storage chain, processing units and food testing labs.

Food processing seems to have taken the centrestage, for the time being at least-but upgradation requires a daunting investment of Rs 1, 40,000 crore over 10 years, the money the government does not have.

FICCI organized an Indo - French seminar and buyer-seller meet on agriculture and food processing on Monday. Tuesday saw an immediate follow-up with a symposium on tasks before the National Task Force on food processing industries, where new minister Chaman Lal Gupta made his second appearance in as many days.

Gupta, describing food processing as the sector for the future, wants the task force headed by Omesh Saigal to try and resolve twor problems - the multiplicity of food regulations that act as a deterrent to investment, private or foreign, and the differing tax structures at the Central and state levels.

Times of India *19.09.2001*

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Irradiation tech raises storage value of spices

Irradiation has proved to be an effective technology to reduce microbial contamination and insect pests of spices.

Good agricultural and manufacturing practices coupled with good post-irradiation handling and storage practices could contribute to a reliable supply base of high quality spices and spice products meeting the global requirements of the regulatory authorities, consumers, food industry and trade, according to the international experts on Food and Environmental Protection.

They said research in the past four decades had demonstrated the safety and effectiveness of irradation for destroying contaminating micro-organisms and insect pests in fresh and stored products including spices and dried vegetables seasonings. Three types of ionizing radiation were permitted for the treatment of foods.

The advantages of irradiation were unlike fumigation, it would leave no chemical residues in the food and could eliminate or reduce the use of toxic or environmentally harmful fumigants. It was a 'cold' treatment, and at the maximum dose generally required for treating spices it was unlikely to effect loss of any volatile oil components of the spice. Finally, because of its penetrating nature, the process permitted treatment of spices in any type of packages as sacks, drums, bags, boxes etc preventing recontamination and reinfestation.

A survey of bacteriological contamination of spices had shown that black pepper, turmeric, paprika and allspice were highly contaminated with bacteria. The results of a collaborative study recently between Bhabha Atomic Research Cente (BARC) Mumbai and Brook Bond (India) Ltd on black pepper, chilli, coriander, cumin and turmeric powders packed in retail market packs indicated that samples irradiated to a dox of 10kGy exhibited zero or less than 10 colony forming units per gram of spice powder after nine months of storage under temperature of 41 degree Celsius. Also studies undertaken jointly by BARC and the Regional Research Laboratory (RRL) Thiruvanathapuram on black pepper, cardamom, ginger, turmeric and chilli revealed no significant differences in the oleoresin (percentage extractives) and volatile oil content of irradiated and non-irradiated spices during 10 month storage period.

Similar joint studies by BARC and CFTRI Mysore had demonstrated that differences between irradiated (10kGy) and non-irradiated black pepper were marginal in respect of oleoesin yield and piperine content during a 12 month test storage; so also the colour of turmeric and its curcumin content. Also, irradiation to a dose lower than one kGy could stop further development of insect eggs and larvae and sterilize adult insects in spices at the time of treatment.

Therefore, irradiation of spices for control of micro-organisms also sterilized or killed any insects present, at all stages of development.

Business Line *20.09.2001*

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Condition on food products' import

Import of food products, which are governed by the Prevention of Food Adulteration (PFA) Act, will be subject to the condition that at the time of import, the products must have a valid shelf life of not less than 60 per cent of the original shelf life. A commerce ministry notification to this effect also clarifies that the shelf life of the products will be determined on the basis of the declaration given on the label of the product about its date of manufacture and the due date of expiry.

Times of India *20.09.2001*

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Indo-French task force on food sector

India and France have decided to set up a task force under the Indo French Working Group on agriculture to explore expanding avenues of cooperation.

This was decided after the visiting French Agriculture and Fisheries Minister, Mr Jean Glavany, held talks with the Indian Ministers Mr Ajit Singh, Mr Venkaiah Naidu and Mr Chaman Lal Gupta on Monday.

During his talks the visiting minister discussed possibilities of cooperation between the two countries in areas of mutual interest including exchange of experience and information in the fields of food processing, horticulture, land resource management and rural road technology.

Mr Jean Glavany said that India provides scope and opportunity for cooperation in food processing sector. He further informed that "Agropole" in French Food Industry Nursery which aims to promote the food processing industry by funding contacts, providing technical, legal and financial assistance as well as production facilities. Agropole is also a modular premise for multiuser production facilities.

The French Minister was accompanied by Secretary, Director of the Cabinet, Additional secretary, deputy Director of the Cabinet, Director General, Agrople, Agen, Ambassador of France in India and other senior officers.

Besides holding talks with his counterpart, Mr Ajit Singh during the day, the French Minister met the Rural Developemnt Minister, Mr

Venkarah Naidu, and the Minister of State for Food Processing Industries, Mr Chaman Lal Gupta.

The visiting minister urged the Indian Government to create better environment for French companies to come and invest in India. He also urged the Government to consider tariff relaxation especially in wine sector.

Mr Glavany also addressed an Indo-French seminar on "Agriculture and Food Processing Technologies" organized at the CIFTI (Confederation of Indian Food, Trade and Industry), in which 12 French and several Indian companies participated. He also attened a working session with Confederation of Indian Industry (CII) on WTO matters.

At the meeting with the Rural Development Minister, the Himachal Chief Minister, Mr Pem Kumar Dhumal, was also present. The Himachal Chief Minister came forward to have collaboration with the French Government either through public or private partnership for integrated projects for production and processing of fruits, mushrooms and ginger in the state.

Mr Dhumal said the Government of Himachal Pradesh was willing to have collaboration in the food processing zone with Himachal Pradesh Marketing Cooperation (HPMC) and the French Government.

The food processing minister, Mr Chaman Lal Gupta, evinced keen interest regarding collaboration in food processing units.

On Saturday, the French Minister visited Sakrayan village in Mathura district of Uttar Pradesh and appreciated the working of self-help groups, Mr Naidu, who made an audio-visual presentation highlighting various rural development schemes, accompanied him.

Addressing the seminar, Mr Ajit Singh said the Government was formulating National Food Processing Policy to create conducive enabling environment by series of policy measures to increase the level of processing from 2 per cent to 10 per cent by the end of the decade. This will need an investment of Rs. 1,40,000 crores.

Here, he said "we need active cooperation from French companies for making investment for setting up manufacturing units for meeting domestic requirements as well as for exports."

He said that the areas where we need strategic relationship with French companies are technology which can add value at reasonable costs for food processing industry; infrastructural development for post harvest handling system and cold chain; packaging for processed food to improve shelf-life of the food, ensure food quality and food safety; human resource development in the areas of food safety and food quality, technical assistance for upgradation of traditional food technologies; food processing sector like winery, dairy, marine and meat and poultry processing technology as well as machinery.

Mr Ajit Singh urged food processing industries from France to become joint venture partners for providing technical and financial support in establishing a network of food parks. So far, 14 such food parks have been approved and these are located in different parts of the country

Mr Singh said that French companies, with their super management capabilities and technological excellence, could play a leading role in exploiting the business opportunities in food processing sector in India by facilitating investment and introduction of the state -of-the art technology in our country.

In India the estimated losses of fruits and vegetables alone due to non-availability of adequate infrastructure, are of the order of US$ 10 billion in a year. This leaves an opportunity for massive investment for upgradation of infrastructure, processing capacity, post-harvest facilities and induction latest technology.

National Herald *20.09.2001*

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Punjab bonanza for agro-food industry

With Assembly elections drawing nearer, the Badal Government has come out with another sop for the agro and food processing industry.

The Punjab Government has decided to exempt these units from various taxes on the purchase of wheat, maize, fruits and vegetables, state Finance Minister Kanwaljit Singh said here today.

"Earlier, 2 per cent market

development fee, 4 per cent tax and 1 per cent infrastructure cess were being charged on the purchase of wheat and maize by the food and agro processing units which have now been completely abolished, " he said.

With the implementation of this decision, the state exchequer would have to bear a burden of Rs 44 crore.

The Minister said 2 per cent rural and market development fee and 1 per cent infrastructure cess has also been abolished on the purchase of fruits and vegetables by these units, entailing an expenditure of Rs 1 crore on the exchequer.

The decision would on the one hand given a fillip to the industry and on the other ensure better remunerative prices to the farming community for their produce.

The Tribune *20.09.2001*

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France to develop food parks in Haryana

The Haryana Government today sought French cooperation to develop infrastructure of international standard to promote the food processing industry in a big way in the state.

Chief Minister, Om Prakash Chautala, talking to a three member French team led by Mr Benezit Jean Francos, Director of International Relations, French Ministry of Agriculture and Fisheries, which called on him here, expressed the commitment of the state government to develop food parks of international standard keeping in view the growing interest of foreign investors and multinational companies in Haryana. He sought French assistance to undertake a feasibility study by their experts to provide a sound base for the promotion of the food processing industry of international level.

Mr Benezit offered the assistance of the French Government for the development of the food processing industry in Haryana and said the French Government had a scheme to give grants for such units.

Principal Secretary to the Chief Minister, S.Y.Quraishi said the food processing industry had enough potential in the context of the WTO and the state would like to give impetus to its food processing schemes.

The Tribune *20.09.2001*

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'Food processing units must source domestic produce'

The government would not allow any surge in farm imports, thus adversely affecting interests of the farmers, even though it was moving ahead with various policy measures to give a boost to the food processing sector, said Union minister of state for food processing industries Chaman Lal Gupta.

Speaking to The Financial Express, Mr Gupta said necessary changes would be made in the proposed draft food processing Bill as also the national food processing policy to make it mandatory for the industry to use indigenous raw materials, in order to help the country's farmers to get remunerative prices.

Setting up of food processing industries should not in any way lead to imports of agro produces, adversely affecting the interests of farmers, he said, adding recently there were reports that McDonald's was rejecting Indian potatoes and importing the same.

Mr Gupta said he had set up a national task force on food processing to address two major concern areas-the existing multiplicity of food regulations which act as deterrents to increased private participation and various levels of existing tax structure.

The government was committed to take every positive initiative to set up infrastructural facilities to give the much needed leg up to this sector, he said , adding the government had already sanctioned 18 proposals for setting up food parks in different states.

These parks would offer common facilities like cold storage, testing labs, effluent treatment plants, clean water supply and common packaging facilities. To facilitate this, the minister said, his ministry would approach the concerned Union ministries and state governments to provide basic infrastructure like all - weather roads, regular power and water supply as also a proper drainage system.

Pointing out that as many as Rs 1,40,000 crore investment was needed during the next 10 years to boost the sector, he asked the states and the private sector to chip in with their share adding the Centre on its part was fully committed to create a conducive environment for both domestic and foreign investments.

Financial Express *20.09.2001*

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Legal Overdose

Will Indian Laws ever let the Indian Food-Processing sector attract $29 billion in investment?

Like any other sector, the Indian processed -food industry also suffers from antiquated laws. According to an apex industry association, Assocham, there are over 20 legislations both at the centre and state level that are choking the growth of this sector. The Indian food market is estimated to be over $ 70 billion. Processed food, however, is a different story. Though it is the fifth largest industry in India, it accounts for a less-than 1.5 per cent share in the world trade of food.

The potential for food-processing growth is immense. This can be gauged from a study undertaken by the Agriculture Ministry that has flagmarked 18 states for attracting investment in the food processing sector. The study expects a total investment of Rs. 140,000 crore ($ 29 billion) over 10 years.

Even though opportunities for investment exist, as over 50 per cent of the average Indian household spending goes into food, very little has so far taken place. Since reforms started 10 years ago, projects worth $13.4 billon have been approved by the Government in the food and agro-processing industries. But only a small amount has actually materialized. Of the total proposed FDI figure of Rs. 9,100 core, only around one fourth (about Rs 2,299 crore) has actually come in.

The chief culprit? Archaic Indian rules and statutes. Says Vijay Sardana , executive director, Centre for International Trade in Agriculture and Agro-based Industries (CITA), "Indian laws reflect history, not the future. Rules that are decades old and haven't changed with the times still find place."

Food laws in India are the biggest laughs of all. You can't make sugar-free ice-cream, nor ice-cream with less than a certain percentage of fat content. "New product formulation is not allowed as per the needs of the market," rues Sardana. There are many other absurd laws too, most of them conceived on the apparent assumption that business are out to cheat consumers on nutrition (or worse), and must therefore be micro-policed, like naughty boys.

Even though foreign companies still show interest in the vast processed-food sector of India, the legal barriers continue to deter investment. In most prosperous countries, what's best for people is left to the dynamic interaction of buyers and sellers that constitutes the 'market' (except when basic laws are broken). And companies are free to create new products and sell them.

Some industrialists want all the old rules to be replaced with a single Food Act. Will this solve the problem? Unlikely. Why? The speed with which government machinery works. "The US has more stipulations than India. The problem is different here. Everybody needs to sit together and process things faster", says Anil Swarup, chairman, APEDA (Agricultural and Processed Food Products Export Development Authority).

So far, the Government's policy has been to offer tax holidays and such incentives to the sector, while requesting state governments to go easy on sales tax and local levies. This, it reckons, will reduce the prices of processed products and spur demand. Perhaps. But if tax holidays and other lollipops were all the policy level help India needed, it'd be a booming country. What is needed is a combination of cost targeted measures and a whole lot of freedoms. Even the little ones. Plus, a sustained campaign to change attitudes towards food processing. This is value -addition, not a conspiracy against farmers (or traditional eating habits)- but people need to realize this. The world is changing rapidly, and investors won't wait forever for India to make up its mind on issues like this. As Sardana says, it's about time the Government decided it has no role in deciding "trivial issues like fat and moisture content".

A&M *15.09.2001*

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India to urge EU to cut duties on gherkins

India is likely to urge the European Union (EU) to reduce high import duties on Indian gherkins and bring it at par with other countries, a top government official has said.

The chairman of the Agricultural and Processed Food Products Development Authority (APEDA) "has assured the industry that the commerce ministry would take up the issue with the EU," said Sanjay Singhani, president of the gherkins producers association.

Most of India's gherkin units are located in Karnataka and Tamil Nadu.

The assurance came after the APEDA and the Karnataka government signed a memorandum of understanding (MoU) for the establishment of an agricultural export zone (AEZ) for gherkins in Bangalore.

Setting up the AEZ would cost Rs 11 crore, of which Rs 7 crore would come from the government and the rest from the private sector.

The assurance has come at a crucial phase in the decade old gherkins industry. Gherkins contribute over Rs 100 crore to India's exports, but in the last year the glut in the international markets has hit the domestic industry.

Exports from India attract import duties of 10.2 per cent for the bulk category of gherkins and 14.9 per cent for the jars. This, industry officials says, is far higher than what is paid by other countries.

"For imports from Turkey there is zero duty and Hungary coughs up (only) 9.6 per cent for the bulk variety and 3.5 per cent for jars, " said N Vishwanathan, additional chief secretary of Karnataka.

"This only adds to the pressure on pricing of Indian gherkins. And the glut in the European market particularly has affected the Indian industry", added Singhani.

The MoU signed between APEDA and Karnataka mentions that the federal government would examine the question of "entering into negotiations with the EU for reduction of import duty on gherkins".

Europe has 43 percent (or 780,000 metric tonnes) share of the global gherkin market. A fourth of this is imported from Turkey, Hungary. Bulgaria, Madagascar and India. Germany is the largest importer buying 200,000 metric tonnes annually.

India's advantage is that gherkins are grown around the year under a contract farming arrangement between the farmers and about a dozen companies in Karnataka and Tamil Nadu.

EconomicTimes *20.09.2001*

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Fruit growers bid to revive cooperative

Once again efforts are being made by farmers in the apple-growing areas of Himachal Pradesh to revive one of their old cooperative societies in the State which is on the verge of liquidation otherwise. The Himachal Fruit Growers' Cooperative, Marketing and processing Society -better known as HIM Process -has seen many ups and down and has ultimately become a victim of clash of interests between the State Government on the one hand and the powerful lobby of growers on the other. One trying to liquidate it and the other trying to save it but both are eying its permanent assets which are worth crores of rupees.

Though the majority of share holders in this cooperative society have lost interest in its working as is evident from the thin attendance in its every general house which is always adjourned due to paucity of quorum and the same happened today when only 25 members came to attend the general body meeting.

The chairman of the society, Mr. Sukh Chain Chauhan cited the indifferent attitude of members for the ills of the society. But majority of members said that too much Government interference was the main reason for its present state of affairs.

The society has a part-time managing director who is Registrar of Cooperative Societies in the Government. He was forced to conduct elections some time back after pressure from the member growers. "The society is now functioning with a first ever elected directors. "We have already recovered about one crore rupees from the banks and NAFED and have cleared all our liabilities," he adds.

HIM Process has a large fruit processing plant at Jabli near Parwanoo and at least 10 bighas of land on the national highway. It has a big building at Azadpur Mandi in Delhi which is reportedly given for a song. The society has about 17 bighas of land in Parwanoo Industrial Area and also some large godowns on the national highway. The Government Department of Civil supplies was ready to pay Rs. 1 lakh per month for these godowns but they were given to a private company for Rs. 17,000.

The Hindu *23.09.2001*

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'Set up inspection facilities for agri - export items'

The Centre should set up inspection facilities in respect of all agriculture products so that the exports market performance is no more sullied " for lack of home work".

This was stated here by Mr Pradeep Dave, President, Pesticides Manufacturers and Formulatiors Association of India (PFMAI). He made this observation to *Business Line* in the specific context of the imperative need for processed foods to carry the "low-residue" tag which alone could clear the way for ensuring exponential growth of exports.

PFMAI has also taken up with the Centre the issue of setting up chemical industrial estates or exclusive chemical zones in designated regions in the country. "The idea is very good, and has been pending since last year. But, the issue boils dawn to this -who will bell the cat? In China, we have a centralized agency to take care of these issues, which we lack here. We have also requested the Centre that in the special chemical zones, finance should be made available at international rates, no excise be levied on power, on sales tax or octroi."

Asked about the trend of pesticide companies diversifying into farm services, Mr Dave said it was natural for agro-chemical companies to get into seeds business, fertilizers and micronutrients as part of forward and backward integration drives. According to Mr Jambunathan, member, PMFAI, countries as Israel were known to promote the one-stop-shop concept in respect of farmers. Over a period of time this trend should pick up in India also. Some companies here had already done this, he said.

As for mergers and acquistitions in the sector , Mr Dave said companies would either consolidate, merge or perish. But in India, the unique feature was that companies were largely controlled by one group or one family. Mergers were not quick nor attractive at the movement.

"We don't have the amount of money needed to replicate mergers in areas, as for instance, telecom. Mergers will be forced only when a dire need for it arises. The case is different abroad where the MDs and CEOs do not have any sentimental attachment with the company. Their commitment is to shareholders only." Mr Dave said.

Dwelling on research and development aspects. Mr Dave said PMFAI had always looked to the string of renowned labs as those owned by CSIR or the Indian Institute of Chemical Technology for outsourcing R&D needs.

On its part, the PMFAI has been providing services to Huntington Life Science, world's second largest research and development laboratory which generates data on various chemicals, pesticides, drug intermediates and biocides. PMFAI acts as Huntington's representatives and sells their services in India.

Business Line *25.09.2001*

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'Veg', 'non-veg' labels must on packed foods

All packed food products will now have to carry a label specifying their origin as 'vegetarian' or 'non-vegetarian' says a government notification issued on Thursday.

The notification issued by the health ministry says a declaration should be made by the manufacturers of all packaged food which contain whole or part of any animal product, including birds, both fresh and marine water animals and eggs, but excluding milk and its by products.

The notification will come into effect from October 4, following an amendment to the Prevention of Food Adulteration (PFA) rules of 1955.

It also directs that any non-vegetarian product shall contain a prominently displayed symbol of a brown dot in square background on the package having contrast background on principal display panel, close to the brand name of the product as well as on labels. containers, pamphlets, leaflets and advertisements of this product in any media.

Financial Express *27.09.2001*

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Prevention of Food Adulteration Rules to be amended

The Government plans to amend the Prevention of Food Adulteration (PFA) Rules, 1955 to make it compulsory to print the "date of manufacture" and the "best before" date on bottles of beverages and soft drinks, instead of their crowns.

Also, declarations on addition of fruit pulp, juice, colour and artificial sweeteners are to be printed on the bottles, according to the draft rules notified by the health and family welfare ministry.

The draft rules also state that all new bottles must have labelling accordingly. However, a five-year time span has been decided to phase out the existing returnable bottles to comply with the requirements of labelling under this notification. The ministry also plans to bring changes in the jurisdiction of the Central Food Laboratories (CFL) and the fee for analysis of imported food which are misleading or contravening the provisions of Prevention of Food Adulteration Act /Rules.

The changes include enhancement of the fee payable to CFL for analysis of samples of imported food from Rs 1,000 per sample to Rs 3,000 per sample due to higher operating costs.

Restriction on advertisements of any food which are misleading or contravening the provisions of the PFA Act or Rules have been extended to cover print, electronic media, internet and websites also.

The changes in the present jurisdiction of CFL have been proposed keeping in view the work load and standards of the laboratories and also due to certain of the new states of Uttaranchal, Jharkhand and Chhatisgarh, said an official release.

Business Standard *27.09.2001*

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See brown logo on non-veg biscuits

Vegetarians and animal lovers can now check for a brown logo on food products to avoid consuming anything with non-vegetarian ingredients, whether biscuits or potato chips.

As per a new rule notified yesterday, the logo, a brown circle inside a square, would henceforth be on the label of any product using a non-vegetarian ingredient. It would come into effect starting October 4,

The Health Ministry said that the rule, that excludes milk and milk products, plus medicines, would make it mandatory for every manufacturer to inform the consumer if any non-vegetarian ingredients had gone into the making of its product.

When any article of food contains whole or part of any animal, including bird, fresh-water or marine animals or eggs or products of any animal origin as an ingredient, a declaration to this effect shall be made by the manufacturer by displaying the brown symbol, the notification says.

The brown symbol should be close in proximity to the name or brand name of the product, and should also be on the labels, containers, pamphlets, leaflets and advertisements in any media, it adds. A separate declaration in addition to the symbol is to be made when a product contains only egg as a non vegetarian ingredient.

The notification will push a whole lot of food products into the non-vegetarian category as a list of animal-based food items brought out by the Animal Welfare Department this year includes many varieties of biscuits, colas, chocolates, ice-creams and alcohol.

Colas which use glycerol extracted from animals or plants, chewing gum and chocolate which contain glycerin, gelatin and emulsifiers of animal origin, jellies made with non-vegetarian gelatin, and sweets and pan with silver *varakh* and biscuits using animal enzymes are mentioned in the list.

The *varakh* on *mithai* consumed by an average family per year would alone represent the use of ox-guts of three cows/bulls as it is made by beating sheets of silver kept between intestines of a freshly slaughtered animal.

Business Line *28.09.2001*

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No more chopping of veggies

Fresh cut processed food industry is big business in the West. Take for example, the multimillion dollar American MNC Coronet Foods which specializes in cut vegetables. Its operation span across continents from USA to China where it sources and processes all kinds of vegetables from the common onion and potatoes to exotic broccoli to baby corn. There are several such big players in the West who have streamlined the technology and reaped rich profits.

Can the success story be repeated in India as well? "Yes!" says Chetan Hanchate, senior manager at Centre for Processed Foods (CPF) , an NGO adjunct of the Center of Technology Development which has identified food processing as one of the important thrust areas for active promotion. "We all know India is the second largest fruit and vegetables growing country in the world. Unfortunately, there is huge post harvest loss of about 30-40 per cent before it reaches the market mainly because of wrong handling, transportation, unloading, lack of cold chain and so on. By processing vegetables before they come to the market we not only preserve quality and cut down handling losses but also reduce the influx of garbage into cities".

As per the Faida (Food and Agriculture Integrated Development Action) report released by McMinsey, in India the price of produce triples between the grower and the consumer because there are several intermediaries. "By locating the processing centers near producing farms, we can give a good price for the farmer and also cut down on the intermediaries thus giving a fair price to the consumers as well," says Mr Hanchate. "There are significant growth opportunities for big companies to lap this market.

Apart from retail customers, they can supply multinational restaurant chains and the hotel industry", he adds.

The difference between cut and frozen vegetables is that the former is freshly harvested and needs to be consumed within 10 days. Instead of vegetables coming directly from the farm to the store, it goes to a processing area where it is washed with potable water then treated with recommended surface disinfectants and then it is taken for peeling and cutting as per the requirement.

The vegetables are ready to cook as only the edible portion is transferred to the market. "It is meant for urban areas especially the metropolitan cities where the pace of life is fast and where there are big departmental stores with cold storage facilities," says Mr Hanchate. Cold storage is crucial to this business. The cut vegetables tend to deteriorate rapidly and lose nutrients. "If they are kept at five degree centigrade or less their nutritive value cn be preserved and best results can be obtained. Vegetables such as carrot, beans, cauliflower etc can be preserved up to ten days. Some leafy vegetables like lettuce, spinach, etc can also be preserved by proper packaging," he says.

"The cost of the processed vegetable may rise by 10-20 per cent but it is worth the money". The treatments and technology for preserving cut vegetables have been developed by Central Food Technological Research Institute (CFTRI). CPF can source technology and get HACCP and ISO clearances for the projects as well. There are different kinds of packaging such as ventilated pouches, special laminates which respire which are required. Test marketing of these products has already been done in Mysore and has been found to be very successful.

Economic Times *01.10.2001*

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A lession in co-operation from Kerala's fruit farmers

Kerala farmers are out to seek the world. And they seem to be getting it! When the Nadukkara Agro Processing Company (NAPC) was set up two years ago at Muvattupuzha in Ernakulam, little did the members of the Kerala Horticulture Development Programme (KHDP) and the European Union, who conceptualized the company, feel that they were creating history in Kerala's agro-industry and preparing a role-model for India.

But July this year, history was created when NAPC's annual general meeting elected on its board of directors four farmers, who also nominated three expert directors.

Three more directors were nominated by the government, besides the managing director appointed by the company.

So now, NAPC is not only owned, but also run by farmers, of which few have even gone beyond school and who certainly do not know of the new paradigms in marketing strategies followed like the holy grail by bigger business institutions. Yet, NAPC is all set to take on these same business majors in the fruit juice sector. And in just two years, it has also secured the necessary certification for selling its products within and outside India.

Mr Ravindranath says NAPC must be the first agro-products company in the country run by the farmers themselves. They source pineapples, mangoes, papayas and ginger from their own farms, process the fruit in their company and sell the processed products to the world, However, pineapples are the fruit of focus.

NAPC has three main product lines, all brand named Jive. There is the pineapple and mango concentrate line with a capacity of 3.5 MT per hour. This is supplied to various multinational companies. The tetra pack concentrate line has a capacity of 6,000 cartons per hour.

The Jive candy line, available in pineapple, ginger and papaya, has a capacity of 120 MT per annum. NAPC has so far exported 15 tonnes of candy to the UK based firm, TradeCraft.

Then there is the juice line, Since last year. NAPC has been marketing Jive pineapple juice in 250 ml packs, but only in Kerala. However, Mr Ravindranath says NAPC has been receiving enquiries for its pineapple juice from other states as well. A recent introduction, time for Onam, was Jive Splash, a mango-pineapple nectar mix. NAPC's fruit juice concentrates are also exported to Nepal and Germany.

When the Nedukkara processing factory was conceptualized way back in 1994, and tenders invited for the factory, the idea was to use the plentifully available fruit and obtain an integrated model for the production of fruit products of international quality and achieve the best value addition for the benefit of the farmers.

In fact, NAPC began life as a pilot project of the Kerala Horticulture Development Programme (KHDP), which has now transformed itself into a company, called the Vegetable and Fruit Promotion Council (Keralam), NAPC came into being with a capital outlay of Rs 30 Crore, aided by the KHDP, the European Union and the Kerala government. It has an equality base in the ratio of 70:30 with the farmers holding the larger chunk. In the first year, it was targeted to have 110 farmers seek a share in the company, but 114 farmers came forward. Under the company rules, each farmer has to buy 250 shares in NAPC at Rs 10 per share.

In its first year of operations, NAPC had a turnover of Rs 1 crore. Its net loss was Rs 8 lakh and Rs 4 lakh was set aside as an agro-fund for further developmental activities. This year, the target turnover is Rs 4 crore and this will help NAPC break even, according to Mr Ravindernath. By the fifth year, he expects a turnover of Rs 25 crore and that NAPC will be a major exporter.

The present paid - up capital of the company is Rs 4.1 lakh. The target set for the company is 1,100 farmers by the fourth year , adding 110 farmers each year. This, according to Mr Ravindernath, should help the company ensure a regular supply of pineapples so that the machines can be run throughout the year. The farmers have to cultivate 6,000 pineapple plants each and supply the fruit to their company for an assured price of Rs 3.50 per kilo, no matter what the market vagaries. They are also supplied fertilizer and other materials at cheaper rates. What's more, the farmers need not own their own land: they can become a part of the company by farming on lease land. The company also ensures crop monitoring on a regular basis and offers free of cost technical advice on horticulture, credit and pest and disease management, Besides training programmes, planting materials is identified and supplied at affordable rates.

NAPC's intention has been to produce on a pilot scale high quality products that would meet national and international standards and develop long term marketing strategies. There is a backward linkage with farmers to secure raw material and a forward linkage whereby farmers participate in the company management and get beneficial returns.

NAPC has yet another first on its list-an integrated ISO 9002/ HACCP certification. It has also got the German SGF certification for assurance and fulfillment of good manufacturing practice, which enables it to export its products to European countries. NAPC now plans to get into the processing of organic products and candies aimed at the higher -end market. Talks are on with fruit suppliers,says Mr Ravindranath. The company also processes mangoes and packs juice for the National Dairy Development Board.

20.10.2001

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'Dot' a must on non-veg food items

The Indian food industry is a worried lot. The brown dot had finally arrived to bust a hole through an already slow market. From October 4, all food companies, from fortified atta and vanaspati to biscuits, ice creams, soft drinks and paneer, will have to compulsorily and "prominently" display a brown dot if their products contain any non-vegetariean ingredients.

As popular additives like Vitamin A, calcium and gelatin are largely from animal origin in India because synthetic alternatives are either too expensive or simply unavailable, a whole new array of food products such as vanaspati (which has to be compulsorily fortified by Vitamin A) and ice creams using gelatin could get into trouble over the brown dot.

"Forget the old debate over eggs. We are asking all our Vitamin A, salt and calcium suppliers to certify they are giving us ingredients of plant origin because under the new law everything has to be of plant origin," said the vice president of a South -based multinational food company.Even companies selling simple foods like atta, such as Cargill, have already established a clear audit trail for all the vitamins and minerals used in fortification because any slip-up could bludgeon both reputation and sales. Others like Agrotech Foods do not use any additives in atta but are equally concerned about the ingredients in other popular products like popcorn.

Non-vegetarian foods have been defined by the government as those which contain whole or part of any animal including birds, fresh water or marine animals, or eggs or products of any animal origin. Only milk or milk products are exempt.

The brown dot, signifying non-vegetarian foods, will have to be "close in proximity" to the name or brand name of the product, and be used in all advertisements, labels, containers and pamphlets, according to the notification issued by the ministry of health. In case manufacturers do not comply, they can be jailed on a nonbailable warrant for at least six months and face other penalties under the draconian Prevention of Food Adulteration Act, 1954.

The only reprieve is for those stocks which were manufactured and packed before the new rules came into force. Thus, while products already on retail shelves can still be sold minus labelling, all production, henceforth, will have to sport the brown dot. Though the legislation has been more than two years in the making and widely anticipated, the final notification has nevertheless thrown the entire food processing industry in a tizzy.

To begin with, the government has refused to buy the industry's argument that eggs are vegetarian. As a result, from now onwards, all biscuits and cakes using eggs and egg derivatives will have to be labelled as non-vegetarian.

More importantly, the law does not specify any percentage above which an ingredient should be considered significantly present in a food product. Consequently, even if the food contains only trace elements of a product of animal origin, the brown dot becomes mandatory.

"All foods contain several additives, enzymes and food processing aids which come from animal origins but are used in very little quantities. Forcing a manufacturer to label his product as non-vegetarian simply because he uses one such trace element is unfair. There will be no end to such labelling then. A percentage should be specified for ingredients," says SK Saxena, director of the Food Research and Analysis Centre (an autonomous lab sponsored by the Confederation of Indian Food Processing Industry.

Task soft drinks, for instance. They use ester gum as a stabilizer, which could be from an animal origin. As less than one per cent ester gum is present in a bottle of soft drink, to label it as non-vegetarian would be taking the issue to ridiculous limits, he said.

"Moreover, some chemicals like gelatin used for stabilizing ice creams, in fact, are wholly of animal origin in India. This means ice creams will have to be labeled with a brown dot under the new law," he pointed out.

Economic Times *04.10.2001*

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Gherkin exporters seek govt support for survival

India's nascent gherkin exporting industry is currently facing its crisis. Five gherkin-exporting companies have closed down in the past three years and may players are making losses as they try to compete in what is essentially a flat international market.

"The fundamental problems are over-capacity and inadequate quality. Between five to 50 containers of each individual exporter were rejected in the last one year, " says Sanjay Sanghani managing director, Unicorn Agrotech and president of the Indian Ghekins Exporters Association. The gherkin crop in the last few years has been affected by two dreaded prestsfruit fly and fruit borer. These pests have affected the quality of the fruit. Apeda has agreed to fund a research programme with the University of Agricultural Sciences, Bangalore. An MoU has been recently signed between US, the Indian Gherkins Exporters Association and Apeda to find solutions to this problem. The government or Karnataka and Apeda have also recently signed on MoU to setup an exclusive agri-export zone for gherkins which will give an impetus to the industry. A committee has been formed with representatives from the gherkin industry to identify the problems and find solutions.

Another important issue being currently addressed is for indigenous development of seeds for gherkins. Today, we are forced to buy exorbitantly-priced imported seeds and are at the mercy of international suppliers. Here again, we are going to work closely with the universities to facilitate indigenous development of seeds," says Mr Sanghani.

The entry of countries like Mexico, Turkey and Madagascar into the global gherkin market has compounded the problems of the Indian gherkin industry, says Mr Sanghani.

"For example, India was selling the 60-160 grade gherkin to the US at the rate of 50 cents a kg freight on board. Whereas, post-Nafta, Mexico supplies the same grade at 50 cents delivered cost at the factory steps. Fresh gherkins are sent by road in refrigerated vans. This makes a big difference of 20 cents per kg, " he says.

If the industry has to survive, the government has to take pro-active steps to effectively reduce the incidence of duties in importing markets, he adds.

Economic Times *20.10.2001*

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Food processing industry urged to become competitive

Union Minister for Food Processing Industries. Chaman Lal Gupta cautioned that in the emerging global scenario food products would need to compete in terms of quality and price not only in overseas markets but also in domestic market. Inaugurating a seminar on 'Globalisation - Impact on Indian Food Processing Industry' organized by the Association of Food Scientists & Technologists of India (AFSTI) in the capital on Friday. Mc Gupta said that with the globalisation of trade, imports can be stopped only on justified and scientific grounds.

Mr Gupta said with the world becoming a global village, food had now become a major foreign exchange earner. The domestic industry should gear up and produce food as per global norms and conventions so that non-tariff barriers have no effect while exporting these products. The WTO has recognised the standards adopted by the Codex Alimentarius Commission (CAC) as reference specification for settlement of disputes in global trade under the agreement on sanitary and phytosanitary measures.

Various countries are insisting that they will procure food products only from companies and areas where the hazard analysis is implemented. Therefore, the domestic industry should have clear knowledge about the needs of importing countries and tune their production accordingly.'

Financial Express *20.10.2001*

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India can be biggest food processing factory: Study

India can be the world's largest food processing factory within 10 years, stated a study by noted economist and chairman of Indian chapter of International Life Sciences Institute DH Pai Panandiker.

The study suggests that the food processing industry should develop technique to face overseas competition. The government should build necessary infrastructure like food parks, agro export zones, regular power supply, good roads and cold chains, it pointed out. India is a major producer of fruits and vegetables. To benefit from economies of scale and to avoid wastage the processing units will have to merge and amalgamate.

The food sector has to adopt good manufacturing practices and hazard analysis at critical control points for boosting exports and competing with imported products. The study further stated that globalisation entails freedom, of investment also.

Financial Express *22.10.2001*

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India can do better in Fruit and Vegetable exports

In an interview, Mr Truls Hanevold, Ambassador of Norway to India said that Norway is a big importer of fruits and vegetables. But Indian presence in this area is dismal. One reason as the high density of pesticides in fruit and vegetables. This problem can be discussed with the importers. The only time we see something from India is mangoes, that is also rare. Even fresh flowers from India are not there. In fact, several small and medium enterprises can get into exports of fruits and vegetables.

Financial Express *30.10.2001*

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Study confirms power of lycopene

The latest research provides new evidence that levels of lycopene are maintined or even increased when tomatoes are processed into soups, sauces and ketchup. Lycopene is the ingredient in tomatoes that makes them red and it's also the ingredient tied increasingly to important health benefits.

A recent article in the Spring 2001 edition of the Journal of Medicinal Food discusses evidence that lycopene, the powerful antioxidant found in tomatoes, retains or increases its potency during processing and storage. "Lycopene Content of Tomato Products: Its Stability, Bioavailability and In Vivo Antioxidant Properties" was written by nutrition researchers Venket Rao, Anita Agrwal, Honglei Shen and Sanjiv Agarwal.

Research from across the world in recent years has strongly suggested that lycopene may help fight prostate cancer and other forms of cancers, heart disease and various illnesses. Previous research has indicated that processing may make lycopene more available to the body by extracting it from the tomato cell walls. Also, the heating process seems to change the chemical structure of lycopene and make it more bioavailable, i.e. useable by the body.

"Dr. Rao and the rest of this team continue to break new ground in studying the bioavailability of lycopene," said Dr. David Yeung, director, corporate nutrition, H.J. Heinz Company. "This new study is among the first to show that lycopene maintains its antioxidant properties during the actual processing and continues to maintain it during storage of up to 12 months. "We were very excited about the results," said Dr.Rao, a full professor in the Department of Nutritional Sciences, Faculty of Medicine, at the University of Toronto. "Although much research remains to be done, we were glad to contribute to the growing evidence that processed tomato products provide the many potential health benefits of lycopene".

Tomato News *Sept.,2001*

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Fungus Offers potential as soy protein alternative

Mycoproteins, a derivative of mushroom-like fungi, are being touted as the preferred alternative to soy-based patties and snacks for healthy meat-free products, according to a recent issue of Food Technology, the Journal of the Institute of Food Technologists.

In a quarterly special report, Developing Foods .com, mycoprotein is described as an ingredient high in protein, low in fat and containing no cholesterol. Similar to soy-based ingredients currently used in the US, mycoprotein is taste-free and said to surpass soy with a texture similar to meat rather than a spongy feel. FDA approval for the sale and consumption of mycoprotein is pending.

In Europe, mycoprotein is being marketed in a line of burgers, nuggets, sausages, and prepared entrees. The UK approved mycoprotein for consumption in 1985. Since then, meatless products using this ingredient have been chosen by 15-20 million consumers. Sales of mycoprotein products in 2001 are expected to surpass US$150 million.

Listing out the ingredient's health benefits, the report said mycoprotein contains all essential amino acids; has a fatty acid composition closer to vegetable fat than animal fat; contains 6.25 percent dietary fibre; is a good source of protein; and has extremely low allergenic potential. Mycoprotein consumption is also said to significantly reduce LDL (bad) cholesterol levels.

One study noted in the article claimed that mycoportein could benefit diabetics, citing examples of significant glycemia and insulinemia reduction after meals that included mycopotein was shown to effectively reduce the amount of food consumed after meals, implying possible uses for controlling body weight and appetite.

Asia Pacific Food Industry Sept.,2001

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ANZFA sanctions inulin and oligofructose as dietary fibre

The Australia New Zealand Food Authority (ANZFA) has issued an update to its Food Standards Code allowing food manufacturers to label inulin and oligofructose as dietary fibre. Announcing this revision to the code, ORAFTI said the change brings Australia and New Zealand in line with other countries throughout the world which recognise inulin and oligoufructose as fibre. ORAFTI markets inulin and oligofructose under the trademarks RAFTILINE and RAFTILOSE respectively.

The revision includes the following clause: Dietary fibre means that fraction of the edible parts of plants or their extracts, or synthetic analogues that-

a. are resistant to the digestion and absorption in the small intestine, usually complete or partial fermentation in the large intestine; and

b. promote one or more of the following physiological effects-

i. laxation
ii. reduction in blood cholesterol
iii. modulation of blood cholesterol

and includes polysaccharides, oligosaccharides (degree of polymerization>2) and lignins.

Expressing delight over the decision, Paul Coussement, ORAFTI executive vice president of sales, marketing and regulatory affairs, said "Now that their status as dietary fibre has been confimed, food manufacturers in Australia and New Zealand have further reason to use their ingredients in products which deliver great taste and nutritional value".

Asia Pacific Food Industry Sept.,2001

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Apeda formulates export strategy for 6 agri products

In a bid to increase agricultural exports to over Rs 10,000 crore annually, Agricultural and Processed Food Products Export Development Aughority (Apeda) has devised a product-specific strategy for six agro-commodities and is working on a few more.

"Depending on the pecularities of different commodities, strategies have been prepared till now for meat, mangoes, flowers, gherkins, basmati, and potatoes, involving research, processing, packaging and country-specific marketing," Aapeda's chairman, Anil Swarup said.

He said similar strategies were also being worked out for litchis, grapes and pineapples which coupled with online trading and setting up of agri-export zones could help India's exports in the sector to cross the Rs 10,000 crore mark.

In mangoes, exports could increase by 25 percent to Rs 100 crore next year itself from Rs. 80 crore as planned efforts were on to penetrate the Chinese, US and Japanese markets.

To allay their fears on presence of fruit fly in Indian mangoes, diplomats of the three countries " were made to taste various varieties during the mango festival in July", he said adding as a consequence Chinese scientists visited India and were quite satisfied with the quality.

China was a huge market at present serviced by Phillipine mangoes, which is now expected to open up for India. For killing pests, if any, a vapour heat treatment plant was being set up in Bombay. There were also plans to participeate in mango trade fairs in Middle East and Europe.

Flower exports should double in two years by reviving sick units, setting up auction centres in different parts of the country and marketing centre in Amsterdam.

Mr Swarup said while an auction centre was being set up in Bangalore, a memoradum of understanding had also been signed with state governments for one each in Bombay and Noida.

After receiving the project report from the states, Apeda would provide financial assistance to the company formed for setting up the auction centers.

A marketing centre was also being set up in Amsterdam (Holland) with similar assistance on an experimental basis at a cost of Rs 35 lakhs and if successful It would be a permanent entity involving an annual expenditure of Rs 2.5 crore. The center would give market feedback, segregate varieties and scout for buyers there by boosting exports.

Rehabilitation packages were also being worked out for 32 sick units which would increase capacity utilization.

In potatoes, with scientists help India was pressing home its cost advantage for an over 100 per cent increase in exports by reducing starch content and sprouting while increasing the size to penetrate the Sri Lankan and Middle East markets.

United Phosphorus had evolved chemicals to delay sprouting, scientists had developed and introduced seeds for reducing starch and enlarging the potato and better farm practices were being adopted. Companies like McDonald and Pepsico were now sourcing their requirement locally.

A 50 per cent growth is envisaged for Gherkins Export by improving quality, packaging and processing, even as talks for zero duty on the products are on with European Union (EU).

Pest related issues had been referred to scientists and lower cost of production will work in India's favour once EU reduced import duty for 10-14 per cent to zero as in case of competitors like Turkey and Morocco.

Mr Swarup said to augment exports of Inda's flagship agrocommodity basmati-a Rs 10 crore export promotion and research foundation would be set up by next year in a yet to be decided location in North India.

Its activities would involve developing better seeds, improving productivity and brand promotion. The foundation would be financed from Apeda's Basmati Developemnt Fund which has been raised by charging Rs 50 per tonne of exports.

In meat, adequate precautions have been taken to ensure that foot and mouth disease (FMD) virus does not affect the animals slaughtered tered for export purpose.

Countries like Jordan, Egypt and Kuwait have been persuaded that though FMD prevails in isolated areas in India, export quality meat is sourced from 'safe' places and there has never been any instance of virus infected meat being exported from the country.

"In fact, FMD virus cannot subsist in the frozen state in which meat is exported," he said adding despite three months being lost in temporary ban in Middle -East countries, exports this year will be nearly the same as last year at $ 300 million.

While scientists are developing three Europe specific grape varieties and cylindrical pineapples instead of oval, which are easier to cut for packing, litchis would be marketed in 250 gms pouches to boost exports.

Controlled atmosphere sea containers would be used for exporting perishables since shipping freight was lesser than air freight by

30 percent , giving a cost advantage.

A Rs 13 crore state-of -the -art cargo handling facility for perishables would also become operational at Bomaby airport next year.

Financial Express *08.10.2001*

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APEDA thrust to boost exports to West Asia

The Agricultural and Processed Food Products Export Development Authority, APEADA , is planning to boost the West Asian region's current share of 33 percent of APEADA's total exports of its scheduled products, with a thrust on items that have a good potential in the regional market, according to a senior official.

Mr A.S. Rawat, Deputy Director, APEDA, who is in the UAE in connection with the authority's participation at the ongoing International Food Fair in Sharjah, told *Business Line* that the Gulf and West Asian region were among the major markets for APEDA, accounting for 33 per cent of the total exports.

APEDA's total exports in 1999-2000 was to the tune of $ 571 million, with this region accounting for around $147 million, he said. "With a systematic focus on products required by this region and accent on quality and specification, we are looking at increasing this share to around 50 per cent in a few years," he said.

There has been an year-on-year growth of around 15 per cent , he added.

While rice, meat and fresh produce were some of the major items of APEADA's exports that had a regular market in this region, there was a significant growth in the exports of processed foods as pickles, instant foods and sweets, Mr Rawat said.

At the Sharjah fair, APEDA had been receiving several trade enquiries for a variety of products and the response at the fair had been good despite the current international crisis, the official said.

"Four exporters are participating at the fair and we are also displaying a wide range of items produced by many of our members, which have a good potential market in this region. In addition to rice and processed foods as pickles, chutneys and fruit pulp, we have also organized a daily display of fresh consignments of fruits and vegetables from India. This has been well-received by the trade section as well as the general public ", he said. This is the second time that APEDA is participating in the Sharjah fair, Earlier, it has participated in fair. Earlier, it his participated in fairs conducted in Dubai and other countries in the region.

Referring to efforts by APEDA to improve production and quality for products with strong export potential, Mr Rawat said recently MoUs were signed for three agri-export zones at Bangalore for production of gherkins, Siliguri in West Bengal for pineapples and Nainital and Ramanagar for litchi.

The main aim of these zones, more of which were planned in due course, was to match products with market demand, compile all financial support through a single window system, provide other requirements for production and devise short and long term strategies from the stage of production to that of export, he explained.

Integrated training programmes were also underway to improve quality and meet export specifications standards that would boost exports of these products, he added.

Business Line *08.10.2001*

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Milk , fruits, vegetables imports post 12% fall

A sharp decline in the imports of milk and milk products, fruits and vegetables contributed to an overall 12 per cent fall in the imports of 300 sensitive items during the first five months of the current fiscal.

Imports of these items fell to Rs 4,032 crore during April-August this year against Rs 4,587 crore in the same period last year.

This decline was most pronounced in the imports of milk and milk products, which fell to Rs 5.6 crore from Rs. 30.8 crore recorded in the previous year.

Those of fruits and vegetables came down to Rs. 25.1 crore from Rs. 70.7 crore recorded in the same period last year.

However, the imports of pistachios and apples, in this category registered a significant increase.

According to an official statement, 'The overall picture that emerges from these quick estimates is that the imports have responed to the customs duty changes and other import management measures put in effect in recent months'.

Going by a comparison of provisional estimates, imports have actually increased during August, as imports had posted a negative growth of 17 per cent during the period April -July 2001-02.

A significant feature of edible oil import is that while imports of soya bean and palm crude oil have gone up, that of refined soya bean and palm oil has gone down leading to better utilization of the processing capacity in the country.

Country -wise, the imports from Brazil, USA, Iran, Nigeria, Uzbekistan and Chile have shown a significant increase during the period April-August.

Imports of products of concern to small-scale sector have posted a decline of 12.3 per cent to Rs. 39.84 crore compared to Rs. 44.7 crore in the same period the previous year.

Hindustan Times *08.10.2001*

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DGFT to notify 3 agri-export zones

The Directorate General of Foreign Trade (DGFT) has specified the names of three product-specific agri- export zones (AEZ) in West Bengal, Karnataka and Uttaranchal, which shall be notified as AEZs.

While the pineapple AEZ in West Bengal would cover the districts of Darjeeling and Jalpaigur, the AEZ in Uttaranchal would be for litchi and would cover the districts of Udhamsingh Nagar and Nainital.

The districts of Tumkur, Bangalore Urban, Bangalore Rural, Hassan, Kolar, Chitradurga, Dharwad and Bagalkot would be covered under the AEZ in Karnataka for gherkins.

An amendment to this effect has already been made in the Handbook of Procedures.

The Central Government had in this year's Exim Policy announced that State Governments may identify product-specific AEZ for end to -end development for export of specific products from a geographically contiguous area.

It was also mentioned that State Governments may evolve a comprehensive package of services provided by all State Government agencies, State Agricultural Universities and all institutions and agencies of the Union Government for intensive delivery in these zones.

Such services would include provision of pre/post harvest treatment of operations, plant protection, processing, packaging, storage and related research and development etc.

The Department of Commerce will supplement, within its schemes and provisions, efforts of State Governments for facilitating such exports.

Agri-exporters in AEZs are entitled for recognition as export house/trading house/ star trading house/super star trading house on achieving 1/3rd of the threshold limit prescribed for exporters of goods.

Business Line *11.10.2001*

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Kuwait lifts ban on Indian meat

Kuwait has decided to lift a ban on meat imports from India. Kuwait's decion follows earlier decions by Egypt and Jordan to lift a ban on Indian meat imports. Industry sources said Saudi Arabia, the only country which has still banned Indian meat, is now expected to lift the ban shortly.

After Jordan and Egypt lifted the ban on Indian meat imports in May and June this year, Kuwait's decision was expected.

"The meat exports to Egypt and Jordan have improved tremendously, and India is expected to do well in this season that has just begun," said All India Meat & Livestock Exporters Association president Irfan Allana.

Egypt, Jordan and Kuwait had banned Indian meat after the reported outbreak of foot and mouth disease (FMD) in India. A senior official from the Agricultural Products Export Development Authority (Apeda) claimed that Kuwait lifted the "unjustified" ban on Indian meat, after "we successfully convinced them about the quality of meat exported."

In 2000-01, animal products

exports had risen to Rs. 1,637 crore from Rs. 905 crore due to an increase in demand from the Middle East which sourced a large part of its buffalo meat requirements from India as mad cow and foot-and-mouth disease afflicted livestock in Europe. Deboned, degraded, frozen buffalo meat formed more than 70 per cent of India's total meat exports which also included sheep and goat meat, he added.

Australia, New Zealand, EU, the US, Canada, Argentina and Brazil are major importers of meat. India's share in the international meat trade is a meager two percent . After the Food and Agriculture Organisation issued health warnings about meat imports, meat consuming countries had become cautious.

Industry sources said the widespread FMD in European countries has resulted in many meat-consuming countries - like Iran, Russia, Iraq, Indonesia and China-considering India as an alternative source of supply, since the disease is reported to be confined to certain states.

Economic Times *11.10.2001*

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Codex Alimentarius Agreement on GMO

During the last Codex Alimentarius meeting in Geneva at the beginning of July, agreement has been reached on the first global guidelines requiring countries to test the safety of genetically modified (GM) foods before they come on the market.

The "in principle' decision was taken by the voluntary code's 165 member states, representing 98 percent of the world population. But members failed to agree on GMO labelling due to deep divisions, officials said. A series of new maximum levels of environmental contaminants -including lead, cadmium and the carcinogen aflatoxin-found in fruit juices, cereals and milk were also decided upon.

'The Codex Commission agreed in principle that the safety of food derived from genetically modified organisms (GMOs) should be tested and approved by governments prior to entering the market," a final statement said, " In particular, GMO foods should be tested for their potential to cause allergic reactions," it added.

The consensus decision, which comes amid European resistance to GM crops because of public concerns over their impact on health and the environment, is expected to lead to tighter U.S. safety procedures to protect export market share.

A task force should have the detailed GM testing guidelines ready in 2003 for the next major Codex talks. It will then be up to countries to implement the guidelines in their legislation.

The principle of 'substantial equivalence" comparing a genetically modified product to a non - GM equivalent is to be a "starting point' for safety assessment.

Tomato News *Oct.,2001*

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USA-FDA Approval of Food Treatment Technology

Cyclopss Corporation announced in early July that the FDA has cleared the way to allow the use of its ECO-PURE food processing technologies in killing food borne pathogens.

The recent FDA approval of ozone as a food additive eliminates the last significant barrier to the use of the patented ECO-PURE cold water food disinfecting systems.

The FDA ruling now allows the use of ozone in the processing of all foods, including meats and poultry.

According to Dr. Durand Smith, Director of R&D at Cyclopss, 'Ozone is the most effective oxidizing anti-microbial agent known. It kills *E-coli* 3125 times faster than chlorine, and converts into oxygen after the process adding quality to the foods by leaving no chemical residuals behind".

Cyclopss is a world leader in the development of environmentally friendly ozone technologies and applications that are used in the cleaning and disinfecting of foods, laundry and surfaces for industry, as well as for individual consumers.

Tomato News *Oct.,2001*

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Bangalore firm to brand red bananas for Mumbai

Indian bananas will now have brand equity. A trio of Bangalore based enterprising entrepreneurs, perhaps taking a cue from two of the global yellow banana brands of Dole and Chikita, are attempting to brand the red banana commonly known as *"sev vazhai"* (in Tamil) or *" chandra bale"* (in Kannada). The red banana variety, being marketed by Bangalore based Shri Bhumi Farms, is called "Menzi"- an anglicized version of Mensi, a village located on the outskirts of Bangalore where this variety is being cultivated.

"We were interested in marketing a branded product and found banana offered an interesting opportunity . The idea is to help bridge the gap between the grower and the consumer", says Nitesh Jain of Shri Bhumi Farms. The red banana is, he adds, more nutritious and can be given to pregnant women and infants.

Typically the red banana had a reddish skin and an off -white pulp or fruit. As it is more fibrous than the conventional yellow variety, it is an effective natural laxative also. The company, he continues, is providing a complete package to the growers. Besides providing the planting material, Shri Bhumi also provides technical assistance to the growers and undertakes a buyback, Red banana is being cultivated on over 20 acres in the village by about 15 farmers.

Economic Times *25.10.2001*

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RRL research, a boost for Manipur ginger farmers

The Regional Research Laboratory at Triruvananthapuram, a constituent of the Council of Scientific and Industrial Research (CSIR), has developed a spices processing technology that is earning Manipuri ginger farmers a whopping return on investment.

RRL director Vijay Nair said a ginger processing unit set up in Manipur last year at Ukhrul with technology from RRL had helped ginger farmers in the area save thousands of tonnes of fresh ginger from being wasted, and also pushed up price of ginger from Rs. 0.50 per kg last year to Rs 6 per kg this year.

"Ukhrul had no electric power at the time of setting up the unit and transportation facilities were virtually non-existent, forcing farmers to sell their crops at rock bottom prices, and thousands of tonnes of ginger were simply wasted. The new plant processes fresh ginger and makes value-added products like oils and oleoresins, ensuring much higher returns for the farmers, too", he said.

The bonus has been the increase in employment opportunity for youth of the area, that in the long run is sure to curtail the number of youngsters who join the ranks of insurgents for terrorist activities.

Enthused by the Manipuri experience which was kicked off during the tenure of former chief minister Rishang Keishing, other northern states have decided to set up similar plants. Meghalaya and Mizoram have both finalized plans for ginger processing plants and farmers all over the north-east are expected to benefit from Regional Research Laboratory's spices processing technology soon.

The north-eastern states account for 40 per cent of India's annual production of 2.2 lakh tonnes of dry ginger, while Kerala contributes an equal amount. Suprisingly, Kerala is yet to make use of the technology.

RRL deputy director and head of the agro processing division, Dr C Arumughan said the technology could be extended to process a variety of spices including chilli and turmeric and even herbs, and that an integrated plant could be put up at a cost of Rs. 3 crore.

The RRL which is earning close to Rs 7 crore per annum from commercial projects, has set up a new 20,000 sq ft R & D facility with an outlay of Rs 9 crore.

Economic Times *03.11.2001*

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Behavioural pattern: Consumption shifts outpace change in agricultural products

The composition of agricultural production in India has been changing over the years, though some would argue that it's not as fast as changes in food consumption. Fruits, vegetables and milk products now account for 34.5 per cent of the value of agricultural output (crops and livestock), marginally more than the share of food grains.

The share of these New Economy sectors in agriculture had gone up steadily from 25 per cent in 1980 and 29 per cent tin 1990.

On the other hand, the share of food grains had fallen from 36.5 per cent in 1980 to 32 per cent in 1990; and further to 30 per cent in 1998-99, before moving up in 1999-2000. These trends reveal that agriculturists have responded to changing consumption habits by diversifying their activities.

But the pace of changing composition of output has been somewhat slower than that of consumption. The share of cereals and pulses in the real consumption expenditure on food had fallen faster from 34 per cent in 1990 to 27 per cent in 2000.

The production of fruits and vegetables grew at an average annual rate of 5.6 per cent during the 1990s, more than double the growth rate in the previous decade. This becomes al the more impressive when all other categories have witnessed a deceleration during the 1990s; production of pulses has actually declined.

This changing composition of agricultural output also has some implication for the analysts who track agricultural GDP as an important demand indicator.

Very often, in absence of adequate data on other crops, analysts base their expectations of growth in agricultural GDP on the available estimates of food grains production. But with the changing composition, that could be misleading.

In 1999-2000 forestry and fishing comprised about 8 per cent of the value addition in the agriculture and allied activities sector.

Of the value of output in remaining activities, livestock accounted for one-fourth and crops for about 75 per cent. Within the crops too, cereals and pulses together contribute close to 40 per cent of the value of outputs.

Thus, when one extrapolates the trends in food grains production to the entire agricultural sector, and sometimes the entire rural demand, one runs a huge risk of misinterpreting the trends!.

For instance, food grains production increased by 2.7 per cent in 1999-2000 and declined by 6 per cent in 2000-01, but in both these years, agricultural GDP was nearly stagnant.

Again, in the first quarter of the current year, agricultural GDP accelerated to 2.3 per cent, despite a drop in rabi foodrgrains production.

Economic Times *07.11.2001*

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Fish production can go up 10 times : Expert

Effective management practices could increase the country's inland fish production by ten times, making use of the huge number of reservoirs created for major, medium and minor irrigation projects over the last 50 years, says an eminent irrigation expert. The total area of the country's irrigation water bodies, including man-made lakes and canal network is about 70 lakh hectares which produces about 2.5 million tonnes of fish annually, B P Das, Orissa's former engineer -in -chief of water resources development department and a globally known expert, said. If certain strategies are adopted and the plan executed, the country's fish production could be raised to 30 million tonnes per annum by properly utilizing nearly 300 large irrigation projects like Hirakud, Bhakra Nangal and Nagarjuna Sagar, around 950 medium projects and over 40,000 minor irrigation projects, he said. Mr Das, who represented the country at the Food and Agriculture Organisation (FAO), said the lakes created by the irrigation projects currently produce about 5 to 10 kg of fish per hectare which could be increased to 50 kg per hectare.

Economic Times *03.11.2001*

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INDUSTRY NEWS

More dairy variants from Britannia

Britannia Industries Ltd plans to launch two to three new dairy products (under the Milkman label) in the market by the end of this year.

Mr Naveen Chopra, Marketing Manager, New Business Division, Britannia Industries, refused to divulge the items to be launched, but it could include products such as yogurt.

Meanwhile, the company has stepped up its focus on the cheese category. It is currently holding a month-long promotional event here called 'Britannia Milkman Not Just Toppings Cheese Days' targeted at housewives and show-casing innovative recipes (with cheese)

In addition, a new Milkman cheese campaign is scheduled to be telecasted on television. "The television campaign is targeted at children and shows the goodness of cheese", Mr Chopra said.,

The initiatives had been taken keeping in mind the nascent stage of the cheese industry in India and the need to build it. In fact, the output of the cheese industry was very low, he said.

Little wonder, Britannia is spending approximately Rs 3-4 crore on marketing each year in this category alone (which is quite large when compared with the actual size of the cheese market). The company currently claims to have a 40 per cent share in the cheese market in the country.

However, Mr Chopra has ruled out the possibility of launching new varieties of cheese in the market in the near future. "New varieties are launched only when the market becomes saturated. We may, however, launch new forms of cheese," he said.

Other dairy products available under the Britannia Milkman brand name include butter, ghee, flavoured milk, lassi and milk.

Business Line *08.09.2001*

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Amul targets biggest food brand tag

From a sleepy village cooperative producing milk to a market -savvy brand that included butter, ice cream, cheese, oil, paneer, chocolates and now pizzas, with a total sales turnover of Rs 2,258 crore in the previous fiscal.

That is the path Amul has travelled. But it has more aces up its sleeve. "We have plans to make Amul the biggest food brand in India, even at the cost of digressing from its core dairy business," according to the Gujarat Co-operative Milk Marketing Federation managing director and CEO, Mr B M Vyas.

The launch of its Rs 20- pizzas across the country was a step in that director, Mr Vyas said.

The latest venture by GCMMF, which markets the Amul brand, largely reflects its responsiveness to the consumer's psyche and its readiness to evolve new market strategies.

It has leveraged its existing cold-chain distribution set-up and the availability of mozzarella cheese from its own plants to introduce six-inch pizzas at a price most MNC chains would not be able to afford".

Judging from the response it has generated in Mumbai , Delhi, Ahmedabad, Bangalore and other cities where it has been launched, Amul is on its way to become the largest pizza retail chain in the country, the Amul chief stated.

"We have about 70 per cent of the processed cheese market. It was a natural progression for us", Mr Vyas observed. What Amul will also cash in on is the demand for pizza cheese as the Italian delicacy increasingly turns into an item of mass consumption.

"We are already marketing the mozzarella cheese, used in our pizza toppings, as Amul pizza cheese and it has generated a good response," the GCMMF CEO said. Currently, GCMMF has established a network of over 400 parlours in 20 cities, and is selling more than 20,000 pizzas every day. The future target is to set up 3,000 parlours in the top 100 cities selling more than 300,000 pizzas per day, and all this within the next three months, Mr Vyas said.

"We want to make pizzas as egg-rolls in Kolkata, *pav-bhaji* in Mumbai and *samosas* in Delhi," Mr Vyas said.

The target, however, gels perfectly well with the Rs 10,000 crore sales target GCMMF founder-chairman, Dr Verghese Kurien, had set for Amul by 2006.

There are also plans to market frozen pizzas as well, as GCMMF would distribute all its pizzas in frozen from to retailers through its existing ice-cream cold chain, which has cost about Rs 70 crore to set up.

Keeping in tune with the times, Amul has recently introduced products such as ice-cream (where it has a 27 per cent market share), paneer, mozzarella cheese and condensed milk.

It is now in the process of roping in other co-operatives outside Gujarat to cater to an expanding market-share, and would also foray into the confectionery sector shortly.

And for ice-cream lovers, Amul would bring their brand to Kolkata early next year.

The Statesman *09.09.2001*

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Pepsi experimenting new cocktail

Pepsi India is, once again, getting ready for corporate structural changes. The changes are coming in the wake of merger of the cola major's three international beverage units-Pepsi-Cola international. Tropicana International and the latest acquisition Gatorade International - into one single new company PepsiCo Beverages International (PBI).

As part of the first merger moves in the country. Tropicana juice business is now being directly brought under the direct control of Mr P M Sinha, business unit general manager. South Asia, PepsiCo Beverages International (PBI) and chairman, PepsiCo India Holdings Ltd.

Significantly, the cola major's juice business was earlier being run under the direct control of Tropicana Beverages Co country head, Abhay Manglik who, hitherto, was reporting to both Tropicana International heads in Brussels (Belgium) and Hong Kong (China).

In the new scheme of things. Mr Manglik will now report to Mr Sinha and will head a newly formed division called 'functional beverages' though he will continue to look after the Tropicana juice business in the country.

Apart from Tropicana juices, the new division is also expected to be responsible for launch of new drinks/ brands in the country. However, when contacted, the company spokesperson said that the move is part of the integration of Tropicana into PBI and it's too early to comment how this division will fan out in the future.

Among other issues that is currently being tackled as part of the integration process is distribution. For as per the global arrangement the whole idea of placing the three international beverage businesses within a single umbrella organization was to provide each the benefit of substantially greater scale and efficiency.

However whether a common distribution network for colas and juices will work in a country like India is currently being debated and worked on within the country." Juices and colas are two different ball - games altogether," said the company spokesperson. According to him, the situation is too fluid at the moment and will take about a month to take a final shape.

The structural changes worldwide, announced by PepsiCo Inc, were designed to take advantage of scale and efficiencies from its recent $13-billion acquisition of Quaker Oats Co.

.... unveils natural tomato Juice

In a unique case of localization, PepsiCo Beverages has introduced a natural tomato juice in India. According to the company, it's the first time in the world that the Tropicana portfolio has been extended to the tomato variant.

Also, the pulp for the tomato juice variant is being sourced locally from a Bhilai-based company called VEC Foods. This is significant since the company is currently importing Tropicana juices - available in orange, apple, grape variants in a concentrate from which are later reconstituted at a plant in Baramati, near Pune, and vacuum packed into Tetrapaks after paying an import duty of about 38 per cent.

Launched in 1-litre packs at Rs. 68. Tropicana tomato juice is expected to contribute 10 per cent to its total sales.

The company is also expected to launch a mixed fruit cocktail variant as part of its product expansion plants.

Earlier, the company had shortlisted three fruit processing companies in Karnataka, Punjab and Orissa for sourcing raw processed fruit for its 100 per cent juices. The company had only recently increased the prices of its juices from Rs 62 to Rs. 68.

Financial Express 11.09.2001

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Dabur Foods hopes to break even

The Rs. 1,166 - crore Dabur India Ltd's fledgling foods company, Dabur Foods Ltd, is set to break even in March 2002.

According to Mr Amit Burman, CEO, Dabur Foods Ltd, the company which is currently in its third financial year, will break even largely on account its Real brand of fruit juices.

The Real brand, which has become the company's flagship, currently accounts for nearly 80 per cent of its turnover. The brand claims a 55 per cent share of the approximately Rs 80-crore fruit juices market.

Dabur Foods' other existing brands - Hommade cooking pastes and Lemonnez lime concentrate have managed to account for only the remaining 20 per cent of the company's sales.

Dabur Foods had earlier announced its expectation of breaking even in March 2001. According to the company's official spokesperson, Dabur Foods has been concentrating primarily on leveraging the Real brand.

Acknowledging Hommade and Lemoneez as 'long haul products', the official said, "We will put marketing muscle behind the Hommade brand, after the company achieves break-even status in March 2002. The long -term intention for Hommade is to extend the brand to other variants such as papads and pickles."

The company is currently test marketing two *papad* variants *Punjabi masala* and *urad dal* in key Southern markets.

According to the company's spokesperson, Hommade's 'made at home' association would hold the brand in good stead in the long-term. However, FMCG analysts pointed out that since both papads and pickles are categories dominated by unorganized sector players, turning Hommade into a stand alone success would require extensive marketing push.

Hommade, currently available in garlic, ginger, ginger-garlic, onion, coconut milk and tamarind variants, was recently relaunched in new packs. Its pastes are available in sachets and bottles. While the Hommade sachets across most variants are priced at Rs 21 for 200 -gm, the bottles have been priced at Rs 25 for the same quality.

Meanwhile, Dabur Foods has introduced a variant of Real under the brand name Real. Active. In contrast to the Real range of sweetened juices, Real Active comes minus additives such as sugar, colour or preservatives.

Real Active has been introduced in two variants -Orange and Apple and targets the calorie-watching consumer. A one-liter pack of Real Active is priced at Rs 62, and the brand is currently being made available across 25 cities.

On the advertising front, only Real is being advertised among Dabur Foods ' brands. The company intends to begin advertising the Hommade brand only later next year.

For the time being, promotions for Hommade are restricted primarily to below-the-line and in shop activities.

The company is continuing with tits distribution arrangement with KJS India to distribute Tang in the domestic market.

Business Line 14.09.2001

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Godrej Foods takes on Real, Tropicana with new brand

The Rs 70-crore Godrej Foods is considering entering the fruit juice market with a separate brand.

Godrej Foods already has brands such as Xs and Jumpin in the fruit nectar and fruit drink markets respectively. By launching a third brand in the fruit juice market, it will enter the arena dominated by Pepsi Foods' Tropicana and Dabur's Real.

The fruit juice segment is at present growing at 20 per cent in a market . Onjus, another player in this segment, has been with - drawn from the market. However, it may make a comeback soon.

Comprising nearly 95 per cent fruit pulp, the fruit juice category is the purest form with the lowest degree of dilution.

With just two fruit juice brands in the Indian market now, Godrej Foods expects to enter this category as an extension of its existing business.

States Mr Siddhesh Brokar, Assistant Manager Marketing, Godrej Foods Ltd, 'Getting into the fruit juice business would be a natural extension for us. We are already present in fruit nectar and drink segments. Now, we will include a juice brand in our portfolio.

Pegging the fruit nectar market to grow at about 20 per cent, it is the fruit drinks segment which continues to stagnate in the market.

While there is no action on Jumpin, with its range of fruit drinks and tomato puree, Xs, its nectar brand, is expected to register some significant volumes through some new variants.

Mr Borkar adds, "At present, we are just managing to hold on to the volumes of Jumpin, while we hope Xs will register some additional volumes through new variants."

It has just stretched the franchise of Xs into a guava nectar flavour along with some changes in the packaging of the brand itself.

A 'U straw in a sleeve' has been introduced, instead of the earlier "Pull tab", offering a more hygienic consumption experience. The new packaging will be available on all Xs variants such as alphonso mango and litchi flavours.

These have been in the market since the launch of the brand in 1999. However, there are no plans to allocate money for an advertising campaign for Xs.

The company intends relying more on road shows, product sampling and in-store merchandising to gain visibility.

Spanning a distribution network which coverers 600 distributors, who, in turn, service 1.2 lakh retailers across the country, Godrej Foods expects to increase its direct sales force for better distribution coverage in future.

"We expect to increase our direct sales coverage by increasing our sales force by least 15 per cent. This should happen by the next financial year," says Mr Borkar.

Godrej Foods claims to make profits on its food drinks and edible oil business. However, in its other division of bulk oil trading, the company has been suffering losses.

Business Line *18.09.2001*

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The Ready To Serve segment is booming thanks to big plans by biggies like ITC and Tasty Bites

The *do*-minute noodles may take 10 to actually come to the table but the options for harried housewives and on-the-run executives are certainly increasing by the minute. The Ready To Serve (RTS) industry is on a fast track and is no longer just *Handi or Fairy's Curries In A Hurry* that you can now look forward to.

Instead, big names like Tasty Bites Eatables Ltd (a 5-crore, hitherto export-oriented company with a presence in 5000 supermarkets in the US) and ITC are now entering the market. While Tasty Bites has increased its presence in Delhi market with the launch of its new products the available range now includes both North Indian and South Indian, ready-to-pour and serve dishes like *Methi Mutter Malai, Tadka Dal, Baigan Bharta, Bisi Bele Bhath*, Bangalore *Vegetable Upma et* al - ITC too has big plans. *Dal Bukhara* cans, of course, are now being retailed from outlets other than Maurya Sheraton's *mithai* shop but the company is planning to diversify into more canned food products. Says a spokesperson. "Our *kormas* and *curries* from *Dumpukht* and Kitchens of India will be soon available at 160 select departmental stores all over."

The expansion plans come even as the food market is burgeoning countryover. While the category of RTS foods may as yet be in its infancy in India, according to estimates, it should grow to around a Rs 150 crore to Rs 200 crore industry in the next three to five years. Says a spokesperson for Tasty Bites : " The industry is picking up....when we entered the market in 1989, we were ahead of our times....The brand's entry into virgin markets did not take off too well inspite of the pluses. However, today, times have changed."

Indian Express 18.09.2001

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Pepsi plans to launch Tropicana cocktail soon

Pepsico Beverages international Ltd, maker of the Tropicana brand of fruit juices, is planning to introduce a fruit juice cocktail shortly. The company has almost finalized the product and is preparing to launch it in the Indian market shortly.

The mixed fruit juice will be available in 200 ml and one- liter Tetrak Pak packaging and will take on Dabur's Real brand of fruit juices.

The Rs 100-crore fruit juice market is currently shared equally by Dabur and Pepsico, each with 40 per cent. For Pepsico, the objective is to wrest away a bigger slice of this market by offering new products.

"We are more into real fruit juices compared with Dabur, whose juices are more sugar-based than us. Tropicana is doing well in its segment and this new product will help us to secure an even greater market share," a senior Pepsico official said.

In the flavoured drink segment, too, Pepsi is planning to introduce products from its international portfolio.

Among the flavours that the company is closely looking at are coffee flavoured "Frappicino" and tea flavoured "Frappicino" and tea flavoured "Brisk" . Both the brands are a huge hit in the US, the official said.

Pepsi has several flavored drinks in India that include orange, lemon, clear lemon and apple.

The company is planning to ride the big growth witnessed in the snack - food segment. "This market is growing at 30 per cent per annum. Here also, we will constantly bring in new products from our international product basket," the official pointed out.

In the Rs 2000-crore snack food market, Pepsico has a 10 per cent market share. The company had reported a turn over of Rs 200 crore in fiscal 2000-01.

Disclosing Pepsi's plans for the east, the official said that the per capita consumption of soft drinks here is abysmally low compared with the rest of the country. "In West Bengal, the per capita consumption of soft drinks is two bottles. Compare this to Delhi where it is 56 and an all-India average of 8. This has left us with a vast potential for growth here," the official pointed out.

Financial Express 22.09.2001

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Marico extends Sil brand in portfolio spread plan

Fast -moving consumer goods (FMCG) company Marico Industries, as part of the company's initiatives to strengthen its brands porttolio, has extended its Sil brand across various processed food categories.

The Sil brand, which was present only in jams, has been extended to sauces, soups and mayonnaise.

In sauces, the company has sidestepped the largest market segment-tomato sauce and has opted to cater to niche sectors such as chilli (red and green) and tamarind sauces.

A senior Marico executive said, "Rather than launching these products under a new brand which requires additional investment for brand building and promotional exercise; we decided it would be better to extend the Sil brand to new categories."

Sil has a 15 per cent market share in the Rs 50-60 crore jam segment where the total volume is 600-700 tonne per month, he added.

Hindustan Level Ltd's (HLL) Kissan leads in the category and commands a market share of over 60 per cent.

Currently, Sil contributes around 3 per cent to Marico's Rs 670 crore turnover and expects to exceed this mark in the current fiscal.

According to analysts tracking the FMCG sector, Sil sauces and soups will face tough competition from HLL's Kissan sauces and Knorr soups, and Nestle's Maggi. Knorr has been putting up a tough fight against Nestle's Maggi in the soup segment.

Also, HILL has become active on the foods market, which is expected to explode in the years to come.

Marico has a marketing and distribution tie-up with Indo-Nissan for selling the litter's Top Ramen noodles brand. Top Ramen has around an 18 per cent market share in this segment.

Marico has reported a 10 per cent increase in net profit at Rs 13 crore in the first quarter ended June 30, 2001. Despite tough market conditions, volumes showed satisfactory growth, yielding a turnover of Rs 148.7 crore during the quarter.

Business Standard 22.09.2001

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Cadbury wraps up $643m Orangina deal with Pernod

Uk Sweets and soft drinks group Cadbury Schweppes on Friday finally wrapped up a 700m euro ($ 643m) deal to buy the soft drinks business of France's Pernod Ricard, which is headed by Orangina.

The long drawn out deal, for the Orangina, Pampryl, Champomy and Yoo-Hoo brands in continental Europe, North America and Australia, won the approval of Pernod Ricard workers last month, allowing it to be finalized by the companies.

The deal remains subject to approval by Eurpoean Union and US regulators.

"Cadbury Schweppes and Pernod Ricard today confirmed that they have signed an agreement for the purchase of Pernod Ricard's soft drinks brands and businesses in Continental Europe, North America and Australia for 700m euros," the British company said in a statement

"This was in line with details of the deal given in June: It may be good news that the deal has been completed but it still needs EU approval," said food industry analyst Warren Ackerman at Dresdner Kleinworkt Wasserstein.

Cardbury shares were off 11 pence at 440-1/2 p by 0925 GMT in a steeply lower stock market, while Pernod shares in Paris were off 1.89 per cent at 75.10 euros. Cadbury and Pernod have been in exclusive talk for 12 months to try to strike a deal after Pernod's agreed sale of Orangina to Coca Cola Co was blocked by the French authorities. Cadbury is ranked third in global soft drinks behind Coke and PepsiCo.

Orangina's dimpled round bottle is a household icon in France and the nation's second-best selling brand after Coke. It will join Cadbury's Oasis, Canada Dry and Dr Pepper brands and will double Cadbury's share of the French soft drinks market to almost 19 per cent, making it number two after Coke.

Economic Times 22.09.2001

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DSM plans big splash in health foods segment

The Rs. 500 - crore DSM group, with interests in sugar, power, and chemicals among other things, is foraying into the food business, positioning itself in the 'health foods' segment.

The company, which recently launched 'Dhampure', the country's first sulphurless sugar, is in talks with a number of foreign food companies to import and sell a range of food items falling under the 'healthy' food category, Mr Deepak Guptara, Deputy General Manager (marketing), Dhampur Sugar Mills Ltd, said.

The company's foray into the foods business has been kicked off with a tie-up with Inglewood Olive Processors, a South -Australia based food company. Beginning October, DSM will import and sell a range of processed olive products and olive oil to be sold under the 'Viva' brand through food retail chains in

Mumbai and Delhi, Mr Guptara said.

"Our target is the up-market customer who has been exposed to a different lifesytle and varied cuisine", we said. The company hopes to do business worth Rs 5 crore in the sale of these products. He also said it was simultaneously in talks with a number of food companies abroad to import and sell their products.

Meanwhile, the company is now in the process of strengthening its retail network, which is planned to touch the 35,000 level in the next couple of years, to aggressively promote its packaged, sulphurless sugar. The company, which expects to crush approximately 100,000 tonnes of sugar at its Rouzagaon plant in UP, plans to export 50,000 quintals to European markets, Mr Guptara said.

The company is also in talks with other food majors to take up co-branding and co-promotion initiatives as part of the exercise to promote the premium sugar. Dhampure retails at Rs 25 a kg and the company has chalked out a big promotion exercise kicking off with a compaign on the electronic media. "We are soon launching the brand in five kg pack to cater to the household segment" he said.

In addition to selling through the retailer, the company also has institutional buyers as large food retail chains and hotels and corporate buyers as beverages manufacturer, Coke. "We expect to generate revenue of Rs 15-20 crore in the fist six months from Dhampure", Mr Guptara said.

Business Line *28.09.2001*

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Mane in pact for manufacturing unit

Mane group of France, in collaboration with the Andhra-based Jonnalgadda group, is setting up a $2 million manufacturing facility at Dindigul, about 25 km from Hyderabad. The plant is expected to commence production by February, 2002.

Mane group is engaged in the production of flavours and fragrances which have application in bakery, confectionery, dairy, beverages, liquor and pharmaceuticals. On the other hand, the Jonnalgadda family is engaged in real estate and construction business. The Mane India Pvt Ltd Chief Operations Officer, Mr Sujesh Govindan, said that the French Company would be holding an equity of 80 per cent , while the Jonnalagadda family's stake would be 20 per cent in the joint venture.

Apart from establishing a 3.5 lakh kg capacity manufacturing facility, Mane's Indian outfit would have a host of support facilities such as creative centers and application laboratories. In the first phase, only flavours manufacturing facility would be set up at a cost of $1 million.

Mr Govindan said that Mane's Indian investment was a part of its global strategy to service its customers locally. It's Indian arm would be responsible for manufacture and distribution of Mane products in the South Asian region.

Business Line *25.09.2001*

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Ready to eat

The undisputed leader in the ready-to-eat foods segment, Tasty Bite Eatables Limited has announced the launch of its new, lip -smacking range of south Indian delicacies. Six new variants have been added to Tasty Bite's existing range of ready-to-eat north Indian entrees and curry sauces. It includes *Bisi Bele Bhath, Khara Bhath, Puliyodare, Avial, Pongal* and last but not the least melt-in-mouth desert called *Kesari*. Further more these products are all natural, with no preservatives added and can be stored without refrigeration for 18 months. Care has been taken to ensure that the new products meet the exacting standards of the disceming south Indian consumer.

Times of India *27.09.2001*

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Amul to launch fat-free, sugar-free ice-cream

For those of you who want to eat ice cream and still ensure that you do not add those extra kilos on your waist, here is a scoop. For the first time ever, Amul has decided to lauch fat-free and sugar-free ice-creams, thereby creating an entirely new segment. It is also good news for health freaks and diabetes.

The Rs 2,260 - crore Gujarat Co-operative Milk Marketing Federation (GCMMF) is eyeing the niche consumers who are keeping off ice cream for the feat of adding extrakilos. "There are people who want to have ice-cream, but are reluctant to do so on health grounds", GCMMF general manager (marketing) Mr R S Sodhi told ET. Besides, there are those who don't touch ice-cream for fear of becoming diabetic.

At present, GCMMF is conducting a marketing study before lauching the products. It is conducting trials on these variants before lauching the products. Mr Sodhi said that GCMMF was confident of launching these products in the next two months. Though the exact market size for these ice-cream variants in not known yet, another GCMMF official said that there is a "very good" market waiting to be tapped.

GCMMF is also entering the softy marketing in a big way, though it is yet to be launched nation-wide. GCMMF has already started selling its softy, called "Snowcap Softy" in a few outlets in Gujarat and Mumbai.

Economic Times 29.09.2001

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MTR to foray into frozen foods range

How much time do you spend in the kitchen? If you are complaining that you are spending more time in the kitchen than you want to, here is a solution. Bangalore - based MTR Group is launching a range of frozen foods in October which would cut down cutting, chopping and frying time. The range would have both south and north Indian delicacies like rice *idly, masala dosa, capsicum masala, aloo* paratha etc. This apart,it is also readying its plans to launch soluble coffee. With all this, the 62 crore company is eyeing a turnover of Rs 100 crore.

The products will be reasonably priced, claims the company, with a *dosa* costing Rs 8, two rice idly Rs 5 and *rava idly* Rs 8. "We are currently test marketing the product in three of our stores in Bangalore," says P. Sadanand Maiya, chairman & managing director of MTR Foods Ltd. Maiya says that the response, so far, has been good.

The company already has a ready to eat range and its immediate plan is to consolidate its distribution network in the existing markets so that its products can reach to both rural and urban households in the country.

Though MTR is a strong brand in the southern markets, it is almost non-existent in the north. However Maiya says, "MTR products are already available in the north. We have a full distribution network in north as well as in west. The products are well accepted in north India especially the ready-to-eat ranges. As far as the frozen foods are concerned, it needs cold chain logistical support, which we have to work out".

The company would also be focusing on major brand building initiatives. "We have already initiated market research to understand the consumers' disposition towards frozen food category", says Maiya. The company would identify the brand positioning stance and define its unique selling proposition (USP) only after the study. The communication strategy too would be based on the findings of the study, explains Maiya.

MTR was also looking at exports, However says Maiya, "Intially we wanted to focus on export but post-US attacks, we're looking at the domestic market too", he says. MTR has two modern facilities at Bommasandra, 20 km from Bangalore.

Business Standard 01.10.2001

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40% share in packaged fruit juices : Pepsi Co

US soft drinks giant PepsiCo claimed 40 per cent share of the Rs 100 - crore packaged fruit juice market while announcing the launch of a new variant called Mixed Fruit under its Tropicana brand , " According to industry estimates, the packaged fruit juice market in India is now about Rs 100 crore. The two leading players in the industry are Tropicana and Real, each holding 40 per cent market share," a PepsiCo spokesperson told PTI here.

Economic Times 05.10.2001

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Danone buys into Stonyfield

French food group, Danone

strengthened its position in the US dairy food market by taking an initial 40 per cent stake in the country's leading organic yoghurt maker Stonyfield Farm.

Paris-based Danone will also have the option to boost its stake in 2004 to a majority holding of Stonyfield, the United States' largest maker of organic fresh dairy product, the companies said in a statement on Thursday.

Full terms of the transaction which they referred to as a "long-term partnership" were not disclosed, but once finalized the deal would be neutral for Danone's earnings, a spokeswoman said.

Danone and rival General Mills are neck and neck for first place in the competitive US yoghurt market.

Analysts said the acquisition will not tip the balance in Danone's favour though it will enhance its US products range in a sector that accounts for five percent of the US fresh dairy product market.

"In terms of scale it won't have a material impact on Danone's overall business, but it's a nice add -on to their portfolio in fresh dairy products in the United States", said Julian Handwicl, sector analyst at ABN Amro in London.

Founded in 1983, Stonyfield Farm has estimated 2001 turnover of 100 million euros, having recorded annual growth of more than 20 per cent over the last 10 years, Danone said.

Under the terms of the agreement Gary Hishberg, Stonyfield's current chairman, will remain in charge of its management.

Danone will provide manufacturing, purchasing, and logistics assistance to Londonderry, New Hampshire based Stonyfield the fourth largest yoghurt brand in the United States, Danone Chairman Franck Riboud added.

Danone's businesses are concentrated in bottled water, yoghurt and biscuits.

Economic Times 05.10.2001

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Nestle gets nod to expand product-mix

Nestle India Ltd is all set to expand its product - mix in the domestic market by venturing into new areas such as sugar confectionery, pickles and chutneys under its brand name.

The company however, will have to source these items from SSI units because these are items reserved for the small-scale sector.

The proposal submitted by the company has been cleared by the Government.

It includes regularization of royalty payments by the company to its parent.

Nestle India is a wholly owned subsidiary of the Swiss multinational, Nestle SA.

The company had, in its application to FIPB, sought permission for sourcing these products from some SSI unit or from units which manufacture these items. Under 'carry on business' (COB) licence.

The Ministry of Food Processing, however, has inserted the provision that Nestle will not be allowed to source sugar confectionery, pickles and chutneys from units manufacturing these products under COB licence but only from SSI units.

It has also included a stipulation in the FIPB approval that Nestle will also have to take up an export obligation of 50 per cent of their annual production of these items which are otherwise reserved for the small sector.

The Ministry also stated that Nestle India will not be allowed to have equity participation of more than 24 per cent in any SSI unit.

As for royalty payment, Nestle had sought permission for regularization of royalty payment with effect from February 6, 1999 to February 3, 2000.

It has also sought permission for payment of royalty for a period of 10 years from the date of agreement i.e. up to November 2002, which has been okayed by the Government.

Business Line 06.10.2001

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Delhi's Mother Dairy, SAFAL merged into single entity

The National Dairy Development Board (NDDB) has merged Delhi's Mother Dairy and its Fruit and

Vegetable Project called SAFAL into a single company.

To be called Mother Dairy Fruit and Vegetable Company Ltd., the new entity has been registered as a public limited company under the Companies Act. It will be wholly owned by NDDB.

This has been done as part of the restructuring process of NDDB and corporatisation of its units.

NDDB's edible oil project that markets the DHARA brand of cooking oils has also been registered as a publixc limited company to be known as Dhara Vegetable Oil and Foods Company.

Similarly, its animal vaccine and biological unit, India Immunologicals has been registered as a company with the same name.

Besides, NDDB has established 17 state offices to assist the milk cooperatives in becoming more vibrant and competitive. These offices are located in Ahmedabad, Bhopal, Cuttack, Erode, Ernakulum, Hubli, Jaipur, Jodhpur, Kalyani, Kanpur, Ludhiana, Mysore, Noida, Patna, Pune, Rohtak and Vijaywada.

According to the NDDB annual report for 2000-01 released today, the Board's turnover during the year stood a Rs 565.59 crore. The total income during the year exceeded the expenditure by Rs. 99.7 crore.

The total number of organized dairy cooperative village societies in the country has gone up to 96,000 with a membership of over 10.6 million farm families. Milk procurement has touched 16.5 million kg a day and milk marketing a record 13.36 milloion litres a day, on annual average basis, the report points out.

NDDB is endeavoring to diversify its product base by including indigenous sweets in its product list. It has provided technology for the manufacture of long life " *paneer*" to the Mandi Dairy Plant in Himachal Pradesh and standardized the manufacturing process for *"Chhana podo"* a sweet popular in Orissa.

A complete *"Khoa"* making line has been installed at Sabar Dairy, Himatnagar (Gujarat). A move is underway to install similar line at the Mother Dairy, Delhi.

Fermented diary products, such as *"Dahi"* and *"Mishti Doi"* are also added to the Delhi's Mother Dairy Product line.

Business Standard *10.10.2001*

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Frozen food from Vadilal

This is hot stuff from ice-cream manufacturer Vadilal : the Rs 145 crore group has launched a range of frozen vegetables and foods in the domestic market, including ready-to cook *parathas* and *samosas* and heat-and-eat *curries*. The company, which is already successfully exporting these products in the over seas market under the name Quick Treat, has now decided to introduce the brand in the domestic market. "In the microwave era, there is a good market for frozen foods in the urban areas, especially metros," general manager (food processing), Mr Maulin Sarati, told ET.

The brand is well-accepted in USA, UK, Canada, New Zerland and the West Asia. So we are confident of succeeding on the domestic front as well. To begin with, the company has already launched its frozen foods and vegetables in Ahmedabad through 10 exclusive outlets.

Economic Times *12.10.2001*

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Coke to take on Rasna in market for powder-drink

This festive season, Cola-Cola India has decided to go dry. Well, almost.The transnational beverages major is all set to take on the might of the home-grown Rasna in the Rs 100-crore and growing powered drink market with its offering -Sunfill.

Part of its strategy to emerge as a total beverage company, Coca-Cola India (CCI) will unwrap Sunfill by October -end or early November.

"We are targeting the C and D category households, or the middle and lower-income group families. It will be priced accordingly," company sources told The Times of India.

The drink, the sources said, will be introduced in two packet sizes single serve and multi-serve (for 8 glasses). "This product will initially be soft- launched in select cities to cash-in on the festive buying".

In addition, the company is also preparing to introduce iced tea and iced coffee in India in the early part of 2002.

"We have an international tie-up with Nestle under which Coca-Cola distributes Nestea. We are evaluating if a similar arrangement can be in place for India. Talks are still underway," the sources added.

The move to expand its beverage portfolio is an effort to replicate Coca- Cola's success in countries like Japan, where 70 per cent of earnings come from non-carbonated drinks.

Coke made the first foary into a greater universe with its bottled water Kinley, which was launched last year.

Times of India *12.10.2001*

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Fromageries to bring Kiri, Babybel cheese soon

The Indian consumer sure has a reason to say cheese. Not only will he soon get to savour the popular French brands like Apericube, Babybel and Kiri but will also be introduced to new flavors such as ham, tomato, green peppercorn and mushroom. For the Fench cheese giant, Formageries Bel, which forayed into the Indian market with its Laughing Cow brand in March this year is expected to widen its product portifolio by bringing in Kiri (creamy cheese in cube form) and Babybel (semi-hard with a wax coating appropriate for sandwiches) into the market.

Says Somesh Dayal, head, Fromageries Bel India : "We do plan to bring in more brands into the market but only when we have consolidated our position with Laughing Cow as the other brands will just be add ons and may not generate volumes".

The company has recently introduced Laughing Cow in the Bangalore market after a successful launch in Mumbai, Delhi, Gujarat , Punjab and Rajastan . Dayal claims that the companies had big plans to push the brand through promotion.

"Globally we look at promotions in a big way to generate awareness and India is no exception," he says. After targeting the top schools in Delhi and Mumbai, it is now eying the major food joints. It has already initiated a week-end promotion at Hot breads outlets where the customers not only get to savour the cheese but can also win gift hampers during a particular time period on a purchase of Rs. 300 and successfully tackle some witty questions. Says Dayal such activities will ensure high visibility and generate more trials. "We plan to experiment with housing societies, organize kitty parties and have promotions at cinemas to reach our target customers - the children and the mothers," says he.

The Rs 300 crore cheese market in India is dominated by players like Amul, which is said to enjoy clear leadership with 50 percent share of the market followed by Britannia with nearly 35 per cent share. But with players such as Nestle and Kraft expected to make a foray into the Indian market, the competition will increase and market share ratios likely to change.

But Dayal is not worried: "The market is still very small and consumption of cheese very low in India; so there is immense scope for new players." He feels that it may not only expand the market but also help increase awareness. The company, which sells Laughing Cow cheddar cheese in two forms - the triangular portions and singles- is targeting a 20 per cent market share of the cheese cube and spread market.

But will the Indian consumers move to specialty cheese soon? It's too early from both the demand as well as the supply end, Dayal explains, One, the consumer taste needs to develop to generate volumes. Two, specialty cheese requires a proper cold chain as the shelf life of these products is not more than a couple of weeks.

Business Standard *24.09.2001*

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The Amul concept

Business needs ideas, not merely money, Ventures run on just money, but starved of ideas, would eventually fall prey to competition and perish. And, if ideas are available in abundance, business can overcome other handicaps, including its relative weaker money power, compared to that of its rivals. The success story of the Gujarat Co-operative Milk Marketing Federation (GCMMF) proves this point.

Amul's central ideas seems to be that of marketing for the poor to use the expression of the eminent Management guru, Mr C.K. Prahalad. The latter identified that India has enormous potential in taking its various products and services to the masses at affordable prices. Amul's latest offer, Amul pizza, is priced attractively around Rs 20, at a fourth of its competitors. Such price-leadership is possible by:

- Cost -effective production, including procurement of milk from over two million dairy farmers that, in turn, assures poor farmers reasonable prices.
- Climbing up in the value-chain by diversifying in value -added products, such as milk sweets, ice creams, pizzas, confectioneries, truly as a food company, rather than merely selling milk, to be known only as an organized milk-vendor.
- Sustained building of loyalty of customers, not by promoting individual products, but all products under the umbrella of its premium brand, Amul, by investing a good 40 percent of its ad budget towards brand promotion.
- Facilitating better reach to customers throughout the country by a strong chain of distribution outlets. Thus, in just less than 15 days after launch, Amul was able to sell 19,000 pizzas everyday, and expects this figure to go up to `100,000 by the end of this financial year . The novelty in concept, right from sourcing to basic ingredients, cost-management, production, marketing, distribution, selling all tailor-made to country-specific requirements-seem to reward Amul.

It is precisely for this reason that there have been increasing shifts of outsourcing of various back-office functions, and IT-enabled services from companies abroad in a variety of businesses, that are expected to reach a huge $17 billion per annum by the end of 2008. At a time when Indian business houses lament high cost of production owing to high input charges be they power, port, freight, taxes, octroi cost of capital and other transaction costs identifying such niche areas themselves lead to competitive advantage. And, if such specific segments are further pursued with sound strategies, to sustain those business strengths and to constantly compete with global players, Amul's ideas are worth emulating; is it not,

Business Line *27.09.2001*

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FAIRS & SEMINARS

World Spice Congress - 2002, Jan 31 to Feb 2, 2002 Kochi

The Spice Congress will showcase the Indian spice industry's capabilities to meet the changing quality requirements of global trade. Delegates from over 21 countries including USA, UK and all other major spice importing countries will be participating in the event.

For further details, contact:-
Sh. C. J. Jose. IAS
Chairman
Spices Board, Cochin
or
Sh. M.S.A. Kumar
Chairman
All India Spices Exporters Forum
Cochin

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International Food Tech Exhibition: International Food Tech Inda, 2002, 9-12 February, 2002, Chennai Trade Centre, Channai

For participation contact :
Secretary
Confederaton of Indian Food Trade & Industry
Federation House, Tansen Marg,
New Delhi - 110 001
Ph. 3736305
Fax : 3320714, 3721504

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Krishi Expo' 2002, 28.2.2002 to 5.3.2002 , Pragati Maidan, New Delhi - 110 001.

For participation contact :
General Manager (Domestic Fairs)
ITPO, Pragati Bhawan,
Pragati Maidan, New Delhi - 110 001.
Ph. 3378804; Fax. 3371872

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Aahar 2002, March 6-10, 2002, Pragati Maidan, New Delhi - 110 001.

This is an International Exhibition for Food, Food Processing, Hotel and Restaurant Equipments and Supplies organisied by ITPO.

For participation, contact
General Manaer (Domesctic Fairs)
ITPO, Pragati Bhawan, Pragati Maidan .
New Delhi - 110 001
Ph.: 3378804, Fax : 3371872.

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FOODEX Japan - 2002, March 12-15, 2002.

The exhibition profile :Agri products, prozen foods, fruits & Vegetables, fruit Juices, meat & meat products, sea foods, bread &cereals, confectionery, spices soft dringks etc.

For details, contact : The Secretariat of Food & Japan 3-1-22, Shipakoen, Minato -Ku Tokyo - 1058522, Japan Ph: 81-3-3434, 8076.

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Asian Seminar on Importance of Food Quality & Safety standards in International Trade, April 4-5, 2002, New Delhi.

The above mega event is being organised by CIFTI supported by various international organizations and Ministries of Govt of India. Eminent Speakers from US/Europe/ Australia, SAARC Countries and also from UN/WTO/Codex etc will be presenting papers on international food quality and safety standards.

For participation, contact :CIFTI,
Federation House, Tansen Marg
New Delhi.
Ph : 91-11-3738760 -70
Fax ; 91-11-3320714/3721504

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BUSINESS OPPORTUNITY

Trade Enquiry from Bulgaria for import of Powdered Fruit Raw material for soft drinks

The above trade enquiry has been received from M/s Arinar Ltd. Bulgaria for import of powdered fruit as raw material for production of soft drinks in large quantities. The adress of the company is given below :

Arinar Ltd., Sofia 1113,

60, Samokov Blvd.

Tel/fax : 359 2 659103/659249

E-mail : arinar@medicom.bg

Interested parties may contact the company directly with their terms and conditions, with copy endorsed to APEDA for information.

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An established Canadian company having office in USA also OFFERS regularly all grades / types of

PULSES:

1. Dry Green Peas (*Matar*)
2. Yellow Peas (Dry *Matar*)
3. Desi Chickpeas (*Kala Channa*)
4. Kabuli Chickpeas (White *Channa*) (Bengal Gram) (Garbanzo)
5. Crimson Whole Red Lentils (Red whole *Masoor*)

Catalog/Brochure available on request.

For necessary details contact :
PN ENTERPRISES LTD
Unit 16593, Bear Creek Market
Surrey BC V3W 2P5 (Canada)
Fax No. : +1-604-507 -1161
Phone : +1-604-507-1131
Toll Free No : 1-8665071130

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Investment Projects for Tanzania related to Food Industry

Given below are three requests from Tanzania for foreign collaboration related to food industry:

1 Karavati Investment

The company has experience in the animal feeds manufacturing industry and has rice milling machine line. They seek collaboration by entering into joint venture, buy-back arrangement and equipment purchase.

2. Avro Enterprises Ltd.

The company is seeking to diversify into producing value added products by using locally available raw materials to substitute the processed food products which are currently being imported from overseas. It is seeking collaboration through joint venture, marketing expertise, buy-back arrangement and equipment purchase.

3. Regents Foods and Drinks

A known fruit juice maker of Tanzania, the company has access to raw material sources and key markets of neighboring countries. The company is seeking to initiate new processed food projects with a joint venture partner.

Interested companies may contact : Shalini Lochan, CIFTI, Federation House, New Delhi - 110 001

Joint Ventures in Thailand

Entrepreneurs interested in promoting joint ventures in Thailand may contact: Ministry of Food Processing Industries, Panchsheel Bhawan, August Kranti Marg, New Delhi. 110049.

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GOVT. CIRCULARS

MINISTRY OF HEALTH AND FAMILY WELFARE

(Department of Health)

NOTIFICATION

New Delhi, the 17th September, 2001.

G.S.R. 670(E) - Whereas certain draft rules further to amend the Prevention of Food Adulteration Rules, 1955 were published as required by sub-section (i) of section 23 of the Prevention of Food Adulteration Act, 1954 (37 of 1954) with the notification of Government of India in the Ministry of Health and Family Welfare (Department of Health) number G.S.R. 68(E), dated 5th February, 2001 in the Gazette of India, Extraordinary, Part II, Section 3, Sub-section (i), dated the 5th February, 2001 inviting objections and suggestions from the persons likely to be affected thereby before the expiry of sixty days from the date on which copies of the Gazette of India in which the said notification was published, were made available to the public.

And whereas copies of the said Gazette of India were made available to the public on the 6th February, 2001.

And whereas objections and suggestions received from the public on the said draft rules have been considered by the Central Government;

Now, therefore, in exercise of the powers conferred by section 23 of the Prevention of Food Adulteration Act, 1954 (37 of 1954), the Central Government, after consultation with the Central Committee for Food Standards, hereby makes the following rules further to amend the Prevention of Food Adulteration Rules, 1955, namely:-

RULES

1. (i) These rules may be called the Prevention of Food Adulteration (7th Amendment) Rules, 2001.

   (ii) They shall come into force on the date of their publication in the Official Gazette.

In the Prevention of Food Adulteration Rules, 1955, in Appendix B, -in item A. 18.02.02, for the words, brackets and figures "Soya flour which is a solvent extracted flour used in such mix shall conform to the standards of soya flour laid down under the Solvent Extracted Oil, Deoiled Meal and Edible Flour (Control) Order, 1967", the following shall be substituted, namely :-

"Soya flour which is a solvent extracted flour used in such mix shall conform to the standards of soya flour laid down under item A. 18.15".

[P-15014/14/2000-PH(Food)]
DEEPAK GUPTA, Jt. Secy.

Note : The PFA Rules, 1955 were published in Part II, Section 3 of Gazette of India, vide S.R.O. 2105 dated 12.9.55 and were last amended vide G.S.R. No. 320 (E) dated 2.5.2001.

MINISTRY OF HEALTH AND FAMILY WELFARE

(Department of Health)

NOTIFICATION

New Delhi. the 17th Septemeber.2001.

G.S.R. 669 (E). - The following draft of certain rules further to amend the Prevention of Food Adulteration Rules, 1955, which the Central Government after consultation with the Central Committee for Food Standards proposes to make, in exercise of the powers conferred by the sub-section (i) of section 23 of the Prevention of Food Adulteration Act, 1954 (37 of 1954), is hereby published as required by the said sub-section, for information of all persons likely to be affected thereby, and notice is hereby given that the said draft rules will be taken into consideration after the expiry of a period of *sixty days* from the date on which copies of the Official Gazette in which this Notification is published, are made available to the public.

Objections or suggestions, if any, may be addressed to the Secretary, Ministry of Health and Family Welfare, Government of India, Nirman Bhawan, New Delhi - 110 001.

The objections and suggestions which may be received from any person with respect to the said draft rules within the period specified above, will be considered by the Central Government.

DRAFT RULES

1. (1) These rules may be called the Prevention of Food Adulteration (...Amendment) Rules, 2001.

   (2) They shall come into force on the date of their final publication in the Official Gazette except sub-rules (ii) and (iii) of rule 2 of these rules which shall come into force after six months on and from the date of such publication.

2. In the Prevention of Food Adulteration Rules, 1955 (hereinafter referred to as said rules),-

(i) after rule 28, the following rule shall be inserted,-namely :-

"28.A- Use of lake colours as colourant in foods : - Aluminium Lake of Sunset Yellow FCF may be used in Powered dry beverages mix (powdered soft drink concentrate) up to a maximum limit of 0.04 percent weight by weight. The maximum limit of colour content in final beverage for consumption shall not exceed 8.3 ppm and that of aluminium content shall not exceed 4.4. ppm of the final beverage for consumption.

Provided that the powdered dry beverages mix (powdered soft drink concentrate) label shall give clear instruction for reconstitution of product for making final beverage",

(ii) in rules 42,-

(a) in sub-rule (zzz) (1), for the existing label, the following label shall be substituted, namely ;-

(i) This.........(Name of Food) contains. ....(Name of artificial sweetener)
(ii) Not recommended for children.
(iii) *(a) Quantity of sugar added.........................gm/100gm.
*(b) Not sugar added in the product.
(iv) Energy (calorific value)...............(in Kilo Calorie /Joules)
(v) *Not for Phenylketoneurics (if Aspertame is added)
(*strike out whatever is not applicable).

(b) for sub-rule (zzz) (2), the following shall be substituted, namely:-

"(zzz)(2) Every package of Aspertame (Methyl ester), Acesulfame-K and Saccharin Sodium marketed as Table Top Sweetener and every advertisement for such Table Top Sweetener shall carry the following label, namely :-

(i) Contains...................................(name of artificial sweetener).
(ii) Not recommended for children".

Provided that he package of aspartame (Methyl Ester) marketed as Table Top Sweetener and the advertisement for such Table Top Sweetener shall also carry the following label namely :-

"Not for Phenylketoneurics"

(C) In sub-rule (zzz) (12), for the existing label, the following lable shall be substituted, namely:-

(i) This ....(Name of the Food............contains an admixture of Aspertame (Methyl Ester) and Acesulfame Potassium.
(ii) Not recommended for children.
(iii) *(a) Quantity of sugar added...............gm/100gm.
*(b) No sugar added in the product.
(iv) Energy (calorific value)....................(in Kilo Calorie / Joules)
(v) Not for Phenylketoneurics.
(*strike out whatever is not applicable).

(d) after sub-rule (zzz) (16), the following sub-rule shall be inserted, namely :-

"(zzz)(17) Every package of food having added caffeine, shall carry the following label, namely:-

"CONTINS CAFFEINE.PPM"

(iii) in rule 61AA, the words " fruit filling " and " fruit beverages or fruit drinks", shall be deleted;

(iv) in rule 62-A, after first paragraph, the following proviso shall be inserted, namely :-

"Provided that mono and diglycerides of fatty acids of edible oil may be used as antifoaming agent in jam, jellies and marmalade".,

(v) in rule 63, in clause (A), the following words shall be deleted, namely,-

"Sometimes animals raw materials either in their natural state or processed";

3. in Appendix B to the said rules,-

(i) in items A. 01.01, for the first proviso, the following provisos shall be substituted, namely,-

"Provided that the quantity of added sugar and its calorific value shall be declared on the container / bottle and if no sugar is added that also shall be declared on the container/bottle as laid down in sub-clause (1) of sub-rules (zzz) of rule 42.

Provided further that if caffeine is added in the products, it shall be declared on the body of the container/ bottle as laid down in sub-clause (17) of sub-rule (zzz) of rule 42",

(ii) after item A. 26-16, the following shall be inserted, namely:-

"**A. 26.17 Aluminium Lake of Sunset Yellow FCF** - Food Yellow No. 5 Aluminium Lake is a fine orange yellow water soluble, odourless powder. It is prepared by prepared by precipitating Sunset yellow FCF (conforming to specification under A 26.02 of Appendix B to Prevention of Food Adulteration Rules, 1955) on to a substratum of Alumina.

Chemical Name - Sunset Yellow FCF Aluminium Lake-6, hydroxy - 5 (-4 - sulfophenlyazo)-2-Naphthalenesulphonic acid, Aluminium Lake.

Synonym- CI Pigment Yellow 104, FD and C Yellow No. 6, Aluminium Lake (USA), Food Yellow No. 5 Aluminium Lake (Japan)

(1) Sunset yellow dye used in preparation of lake colour shall conform to specifications laid down under A. 26.02 of Appendix B to the Prevention of Food Adulteration Rules, 1955.

(2)	Pure dye content of Aluminium Lake	not less than 17 percent weight by weight.
(3)	Substratum of Aluminium oxide.	not more than 83 percent.
(4)	Aluminium content in the lake, weight by weight.	not more than 44 percent.
(5)	Soluble chlorides and Sulphates (as sodium salts)	not more than 2.0 percent.
(6)	Inorganic matter (HCl insoluble)	not more than 0.5 percent.
(7)	Lead (as Pb),	not more than 10 ppm.
(8)	Arsenic (as As)	not more than 3 ppm.

Alumina used in colour shall conform to following, namely :-

a) **Identify** : Alumina (dried aluminium hydroxide) is a white, odourless, tasteless, amorphous powder consisting essentially of Aluminium hydroxide (Al_2O_3 x H_2O).

b) **Specifications** : Alumina (dried aluminium hydroxide) shall conform to the following specifications, namely;-

(i) Acidity or alkalinity : Agitate I gm with 25 ml of water and filter. The filtrate shall be neutral to litmus paper.

(ii)	Lead (as Pb)	not more than 10 parts per million.
(iii)	Arsenic (as As)	not more than 1 parts per million.
(iv)	Mercury (as Hg)	not more than 1 parts per million.
(v)	Aluminium oxide ($A1_2O_3$)	not less than 50 percent.

Solubility : Lakes are insoluble in most solvents. They are also insoluble in water in pH range from 3.5-9.0 but outside this range and the lake substrate tends to dissolve releasing the captive dye".

[No. P 15014/8/2001-PH (Food)]
DEEPAK GUPTA. Jt. Secy.

Note : The prevention of Food Adulteration Rules . 1955 were published in Part II. Section 3 of Gazette of India Vide S.R.O. 2105 dated 12.09.1955 and were last amended vide G.S.R.No. 320 (E) dated 2.5.2001.

MINISTRY OF HEALTH AND FAMILY WELFARE

(Department of Health)

NOTIFICATION

New Delhi, the 21st September, 2001.

G.S.R. 681 (E).- The following draft of certain rules further to amend the Prevention of Food Adulteration Rules, 1955, which the Central Government after consultation with the Central Committee for Food Standards, proposes to make, in exercise of the power conferred by the sub-section (1) of section 23 of the Prevention of Food Adulteration Act, 1954 (37 of 1954), is hereby published, as required by the said sub-section, for the informaton of all persons likely to be attached thereby, and notice is hereby given that the said draft rules will be taken into consideration after the expiry of a period of sixty days from the date on which the copies of the Official Gazette in which this notification is published, are made available to the public.

Objections or suggestions, if any, may be addressed to the Secretary, Ministry of Health and Family Welfare, Government of India, Nirman Bhavan, New Delhi - 110001;

The objections and suggestions which may be received from any person with respect to the said draft rules within the period specified above, will be considered by the Central Government.

DRAFT RULES

1. (1) These rules may be called the Prevention of Food Adulteration (...Amendment) Rules, 2001.

(2) They shall come into force after six months from the date of their final publication in the Official Gazette.

2. In the Prevention of Food Adulteration Rules, 1955, in Appendix B, -

(a) in item A. 11.02.18 relating to INFANT MILK FOOD, in the standards; after serial number 32, the following shall be inserted, namely,-

"33. Yeast and mould count	absent in 0.1 gm
34. Salmonella and Shigella	absent in 0.1 gm
35. E. Coli.	Absent in 01.gm
36. Vibrio cholera and V. Paraheamolyticus	absent in 01.gm
37. Faecal streptococci and Staphylococcus aureas	absent in o.1gm".

b) in item A.11.02.18.01, relating to INFANT FORMULA, in the standards, after serial number 32, the following shall be inserted, namely,---

"33. Yeast and mould count	absent in 01.gm
24. Salmonella and shigella	absent in 01. gm
36. Vibrio cholera and V. Paraheamolyticus	absent in 01. gm
37. Faecal streptococci and Staphylococcus aureas	absent in 01. gm

(c) in item A. 11.02.18.02, relating to MILK-CEREAL BASED WEANING FOOD, in the standards, after serial number 12, the follwing shall be inserted, namely,-

"13. Yeast and mould count	absent in 01. gm
14. Salmonella and Shigella.	absent in 01. gm
15. E. Coli	absent in 01. gm
16. Vibrio cholera and V. Paraheamolyticus	absent in 0.1 gm

17. Faecal streptococci and Staphylococcus aureas	absent in 0.1 gm",

(d) in item A. 11. 02, 18.03, relating to processed cereal based weaning food, in the standards, after serial number 15, the following shall be inserted, namely,

"16. Yeast and mould count	absent in 0.1gm
17. Salmonella and Shigella	absent in 0.1 gm
18. E. Coil	absent in 0.1 gm
19. Vibrio cholera and V.Paraheamolyticus	absent m 0.1 gm
20. Faecal streptococci and Staphylococcus aures	absent 0.1 gm.

(e) in item A. 18. 12.01, relating to MALTED MILK FOOD, in the standards after serial number (j), the following shall be inserted, namely,

"(k) Yeast and mould count	absent in 0.1 gm
(l) Salmonella and Shigella	absent in 0.1 gm
(m) E. Coli	absent in 0.1 gm
(n) Vibrio cholera and V. Paraheamolyticus	absent in 0.1 gm
(o) Faecal streptococci and Staphylococcus aureas	absent in 0.1 gm";

(f) in item A. 18 12.01, relating to MALT BASED FOOD (MALT FOOD), in the standards, after serial number (j), the following shall be inserted, namely,

"(k) Vibrio cholera and V .Paraheamolyticus	absent in 0.1 gm
(l) Faecal streptococci and Staphylococcus aureas	absent in 0.1 gm

[No. P-15014/13/99-PH(Food) Vol.II]
DEEPAK GUPTA, Jt. Secy.

Note : - The Prevention of Food Adulteration Rules, 1955 were published in Part II, Section 3 of Gazette of India vide S.R.O. 2105 dated 12-9-1955 and were last amended vide G.S.R.No. 320 (E) dated 2-5-2001.

MINISTRY OF HEALTH AND FAMILY WELFARE

(Department of Health)

NOTIFICATION

New Delhi, the 17th September, 2001.

G.S.R. 668(E). - The following draft of certain rules further to amend the Prevention of Food Adulteration Rules, 1955, which the Central Government, after consultation with the Central Committee for Food Standards, proposes to make, in exercise of the power conferred by the sub-section (1) read with sub -section (1A) of section 23 of the Prevention of Food Adulteration Act, 1954 (37 of 1954), is hereby published as required by the said section (1) for the information of all persons likely to be affected thereby; and notice is hereby given that the said draft rules will be taken into consideration after the expiry of a period of sixty days from the date on which the copies of the Gazette of India in which this notification is published are made available to the public;

Any objection or suggestion which may be received from any person with respect to the said draft rules within the period specified above will be considered by the Central Government.

Objections or suggestions, if any, may be addressed to the secretary, Ministry of Health and family Welfare, Government of India, Nirman Bhavan, New Delhi - 110 011.

DRAFT RULES

1. (1) These rules may be called the Prevention of Food Adulteration (..........Amendment) Rules, 2001.

   (2) They shall come into force on the date of their publication in the Official Gazette.

2. In the Prevention of Food Adulteration Rules, 1955 (hereinafter referred to as the said rules), for rule 22, the following rule shall be substituted, namely:-

   "22. Quantity of sample to be sent to the public analyst :- The quantity of sample of food to be sent to the public analyst / Director for analysis shall be an specified in the Table below:

TABLE

Article of food	Approximate Quantity to be Supplied
(1)	(2)
1. Milk	500ml. With preservative.
2. Sterilized Milk/UHT Milk	250 ml. Sealed pack.
3. Malai /Dahi	200 gms. With preservative.
4. Yoghurt/Sweetened Dahi	300gms. With preservative.
5. Chhana/ Paneer /Khoya/Shrikhand	250 gms. With preservative.
6. Cheese/Cheese spred	200 gms. With preservative.
7. Evaporated Milk /Condensed Milk	200 gms. With sealed pack.
8. Ice-cream /softy/kulfi/Ice candy/Ice lolly	300 gms. With preservative.
9. Milk Powder /Srimmed Milk Powder	250 gms. Sealed pack.
10. Infant food / weaning food	500 gms. Sealed pack.
11. Malt Food / Malted Milk Food	300 gms. Sealed pack.
12. Butter /Butter Oil/ Ghee/ Margarine/ Cream Bakery Shortening	200 gms.
13. Vanaspati, Edible Oils /Fats	250 gms.
14. Carbonated Water	600 ml. In 3 sealed pack.
15. Baking Powder	100 gms sealed pack.
16. Arrow root/ Sago	250 gms.
17. Corn flakes / Macaroni Products/ Corn Flour /Custard Powder	200 gms. Sealed pack]
18. Spices Whole	200 gms.
19. Spices Powder /Mixed masala	250 gms. Sealed pack
20. Nutmeg/Macc	150 gms.
21. Asafoetida	100 gms.
22. Compounded Asafoetida	150 gms.
23. Salffron	20 gms.
24. Gur/jaggery, Icing Sugar, Honey, Synthetic Syrup, Bura	250 gms.
25. Cane Sugar /Refined Sugar	200 gms.
26. Artificial Sweetener	100 gm, preferably in sealed pack
27. Fruit Juice /Fruit Drink /Fruit Squash	400 ml sealed pack

28. Tomato Sauce/Ketch up /Tomato Paste, Jam/Jelly/Marmalade	300 gms sealed pack
29. Non Fruit Jellies	200 gms sealed pack
30. Pickles and Chutneys	250 gms
31. Oilseeds /Nuts /Dry Fruits	250 gms
32. Tea/Roasted Coffee	200 gms
33. Instant Tea/Instant Coffee	100 gms sealed pack
34. Sugar Confectionery/Chewing Gum/ Bubble Gum.	200 gms
35. Chocolates	200 gms sealed pack
36. Edible Salt	200 gms
37. Iodised Salt/Iron Fortified Salt	200 gms sealed pack
38. Food Grains (who and Split)	500 gms
39. Atta / Mada/Suji/Besan/Other Milled Product /Fortified Atta /Maida	500 gms
40. Biscuits and Rusks	200 gms sealed packs
41. Bread /Cakes /Pasties	250 gms with preservative
42. Gelatin	150 gms sealed pack
43. Catechu	150 gms.
44. Vinegar/Synthetic Vinegar	300 gms
45. Food colour	25 gms
46. Food colour preparation (Solid/Liquid)	25 gm Solid , 100 ml liquid
47. Natural Mineral water Packaged Drinking Water	3000 ml in three original sealed packs.
48. Silver Leafs	1 gm
49. Prepared Food	500 gms with preservative
50. Proprietary food, (non Standardised (Foods)	300 gms sealed pack.
51. Canned Foods	6 scaled cans
52. Food not specified	300 gms".

3. In Appendix A to the said rules, for From II and Form III, the following shall be substituted, namely :-

"FROM II

[See Rule 4 (5)}

[Certificate of test or analysis by the Central Food Laboratory]

Certificate No....................................

Certified that a sample bearing number.......................purporting to be a sample of ....was received on..................with Memorandum No............dated ....from ....(name of the court)................for analysis.

The sales on the outer cover of the sample container as well as the sample were tallied with the specimen impression of seal forwarded separately by the Court. The seal were intact.

I found the sample to be...............(category of the sample)................falling under item No............of * Appendix B of Prevention of Food Adulteration Rules, 1955/* non standardised item. The sample was in a condition fit for analysis and has been analysed on........(Given Date of starting and completion of analysis)...........and the result of its analysis are given below/* was not in a condition fit for analysis for the reason given below:-

....

....

Analysis Report:-

Sample Description /Physical Appearance:-

....

Serial Number	Quality Characteristics	Method of test	Result	Criteria for conformity used
1.	-	-	-	Item A------------/ As per label declaration/ As per provisions of the Act and Rules.
2.	-	-	-	
3.	-	-	-	
4.	-	-	-	
5.	-	-	-	
6.				

Opinion:-

(Give conformity to Rules / label declaration)

Place:
Date:

Director
Central Food Laboratory

*strike out whichever is not applicable.

— — — — — — —

FROM - III

[See Rule 7(3)]

[Report of the Public Analyst]

Report No.............

Certified that I.................(name of the Public Analyst)............duly appointed as Public Analyst under the provision of the Prevention of Food Adulteration Act 1954, for ....(name of the local area)............received a sample of ....bearing Code No. and Serial No.....................of Local (Health) Authority on........(Date of receipt of sample)................for analysis.

The seals on the outer cover of the sample container as well as the sample were tallied with the specimen impression of seal forwarded separately by the Food Inspector. The seal were intact.

I found the sample to be ......(category of the sample)...........falling under item No...........of * Appendix B of Prevention of Food Adulteration Rules, 955/*non standardised item. The sample * was in a condition fit for analysis and has been analyses on........(Give Date of staring and completion of analysis)..........and the result of its analysis are given below / *was not in a condition fit for analysis for the reason given below:-

....

Analysis Report:-

Sample Description /Physical Appearance:-

....

....

Serial Number	Quality Characteristics	Method of test	Result	Criteria for conformity used
1.	-	-	-	Item A------------/ As per label declaration/ As per provisions of the Act and Rules.
2.	-	-	-	
3.	-	-	-	
4.	-	-	-	
5.	-	-	-	
6.				

Observation:-

(Give conformity to Rules / label declaration)

Signed this.............day of ....20.........

(Signature)
Public Analyst".

Address...........................

*strike out whichever is not applicable.

[P15014/3/2001-PH(Food)]
DEEPAK GUPTA, Jt. Secy.

Footnote : The Prevention of Food Adulteration Rules 1955 were published in Part II, Section 3 of the Gazette of India vide S.R. O. 2115 dated the 12th September 1955 and were last amended vide G.S.R 320 (E) dated the 2-5-2001.

MINISTRY OF HEALTH AND FAMILY WELFARE

(DEPARTMENT OF HEALTH)

NOTIFICATION

New Delhi, the 17th September, 2001.

G.S.R. 672 (E). - The following draft of certain rules further to amend the Prevention of Food Adulteration Rules, 1955, which the Central Government, after consultation with the Central Committee for Food Standards, proposes to make, in exercise of the power conferred by the sub-section (1) of section 23 of the Prevention of Food Adulteration Act, 1954 (37 of 1954), is hereby published as required by the said sub-section, for the information of all persons likely to be affected thereby, and notice is hereby given that the said draft rules will be taken into consideration on or after the expiry of a period of sixty days from the date on which the copies of this official Gazette in which this notification is published, are made available to the public;

Objections or suggestions, if any, may be addressed to the Secretary, Ministry of Health and Family Welfare, Government of India, Nirman Bhawan , New Delhi - 110 001.

The objection and suggestion which may be received from any person with respect to the said draft rules before the expiry of the period so specified, will be considered by the Central Government.

DRAFT RULES

1. (i) These rules may be called the Prevention of Food Adulteration (.........Amendment Rules), 2001.

(ii) They shall come into force on the date of their final publication in the Official Gazette.

2. In the prevention of Food Adulteration Rules, 1955 (hereinafter called as said rules) in rule 3, in sub-rule (2),---

(a) for the Table1, the following Tables shall be substituted, namely:-

"TABLE - I

Name of the Central Food Laboratories	Local Areas
(i)	(2)
1. Central Food Laboratory, Calcutta - 700016.	Arunachal Pradesh, Chhattisgarh, Manipur, Meghalya, Mizoram, Nagaland, Orissa, Sikkim, Tripura, Uttaranchal and Union Territories of Andaman and Nicobar Island and Lakshadweep.
2. Central Food Laboratory, Mysore -570013,-	Assam, Gujarat, Haryana, Himachal Pradesh, Maharashtra, Punjab, Uttar Pradesh and Union Territory of Chandigarh.
3. Central Food Laboratory, Pune - 411001.	Andhra Pradesh, Delhi, Jammu and Kashmir, Karnataka, Kerla, Madhya Pradesh, Rajasthan and Tamil Nadu.
4. Central Food Laboratory, Ghaziabad - 201001.	Bihar, Goa, Jharkhand, West Bengal, Union Territories of Dadar and Nagar Haveli, Daman & Diu and Pondicherry",

(b) in Table II,-

(i) against entry relating to the Central Food Laboratory, Kolkata, in column (2), in item 1, the following shall be added at the end, namely,

"(xiv) Jharkhand".

(ii) against entry relating to the Central Food Laboratory, Ghaziabad, in column (2),

(A) in item 1, the following shall be added at the end, namely,

"(x) Chhattisgarh
(xi) Uttaranchal".

(B) in item 2, the following shall be added at the end, namely,-

"(vi) Uttaranchal;

3.In rule 4, of the said rules, after sub-rule (7), the following shall be inserted, namely,-
"(8) The fee payable in respect of analysis of samples of imported food analysed in any designated laboratory shall be Rs. 3000/- per sample payable by the importer".

4. In rule 43 A of said rules, in the Explanation, for the words "by means of any light, sound, smoke or gas", the words, -"by means of any light, sound , smoke, gas, print, electronic media, internet or website" shall be substituted.

[No. P- 15014/4/2001-PH (Food)]
DEEPAK GUPTA, Jt. Secy.

Note: - The Prevention of Food Adulteration Rules, 1955 were published in Part II, Section 3 of Gazette of India vide S.R.O. 2105 dated 12-9-1955 and were last amended vide G.S.R. No. 320 (E) dated 2-5-2001.

MINISTRY OF HEALTH AND FAMILY WELFARE

(Department of Health)

NOTIFICATION

New Delhi, the 17th September, 2001.

G.S.R. 671(E). - The following draft of certain rules further to amend the Prevention of Food Adulteration Rules, 1955, which the Central Government, after consultation with the Central Committee for Food Standards proposes to make, in exercise of the powers, conferred by sub-section (1) and sub- section (1A) of section 23 of the Prevention of Food Adulteration Act, 1954, is hereby published as required by these said section (1) for the information of all persons likely to be affected thereby, and notice is hereby given that the said draft rules will be taken into consideration on or after the expiry of a period of sixty days from the date on which copies of the Gazette of India in which this Notification is published are made available to the public;

Any objection or suggestion, which may be received from any person with respect to the said draft rules before the expiry of the period so specified will be considered by the Central Government.

Objections or suggestions, if any, may be addressed to the Secretary, Ministry of Health and Family Welfare, Government of India, Nirman Bhavan, New Delhi - 110 011.

DRAFT FULES

1. (I) These rules may be called the Prevention of Food Adulteration (..........Amendment) Rules, 2001.

(II) They shall come into force on the date of their final publication in the Official Gazette.

2. In the Prevention of Food Adulteration Rules, 1955, in rule, 65, in the Table, in item 15, in clause (C), after the words "Milk products" occurring in column 3 and the entry relating thereto, in column 4 , the following shall be inserted, namely:-

TABLE

Sl. No.	Name of insecticide	Food	Tolerance limit Mg/kg (ppm)
(1)	(2)	(3)	(4)
		"Milk products(having less than 2 per cent fat)	0.20 (on whole basis)"

[No. P-15014/5/2001-PH(Food)]

DEEPAK GUPTA, Jt. Secy.

Foot Note: - The Prevention of Food Adulteration Rules, 1955 were published in PART II, Section 3 of Gazette of India vide S.R.O 2105 dated the 12-9-1955 and were last amended vide G.S.R. 320 (E) dated 2-5-2001.

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MINISTRY OF HEALTH AND FAMILY WELFARE

(Department of Health)

NOTIFICATION

New Delhi, the 17th September 2001.

G.S.R. 667 (E). - The following draft of certain rules further to amend the Prevention of Food Adulteration Rules, 1955, which the Central Government, after consultation with the Central Committee for Food Standards, proposes to make, in exercises of the powers conferred by sub-section (1) of section 23 of the Prevention of Food Adulteration Act, 1954 (37 of 1954), is hereby published as required by said sub-section (1) of Section 23 of the Prevention of Food Adulteration Act, 1954 (37 of 1954), is hereby published as required by said sub-section for the information of all persons likely to be affected thereby, and notice is hereby given that the said draft rules will be taken into consideration on or after the expiry of a period of sixty days from the date on which copies of the Gazette of India in which this notification is published are made available to the public.

Objection or suggestion, if any, may be addressed to the Secretary, Ministry of Health and Family Welfare, Government of India, Nirman Bhavan, New Delhi - 110011.

The objection or suggestion which may be received from any person with respect to the said draft rules before the expiry of the period so specified will be considered by the Central Government.

DRAFTRULES

1. (1) These rules may be called the Prevention of Food Adulteration (...Amendment) Rules, 2001.

   (2) They shall come into force on the date of their final publication in the Official Gazette.

2. In Prevention of Food Adulteration Rules, 1955, in Appendix 'B', --

   (a). for item A.08.03, the following shall be substituted, namely:-

A.08.03 Coffee - Chicory Mixture means the product prepared by mixing roasted and ground coffee and roasted and ground chicory and shall be in a sound, dry and dust free condition with no rancid or obnoxious flavour. It shall be in the form of a free flowing powder having the colour, taste and flavour characteristic of coffee- chicory powder. It shall be free from any impurities and shall not contain any other added substance. The coffee content in the mixture shall not be less than 51 per cent by mass. The percentage of coffee and chicory used shall be marked on the label as provided in clause (i) of sub-rule (A) of rule 42.

It shall conform to the following standards, namely :-

(i) Moisture	Not more than 5.0 per cent.
(ii) Total insoluble ash on dry basis	3 to 7.50 per cent.
(iii) Acid insoluble ash on dry basis	Not moe than 0.6 per cent.
(iv) Water soluble matter on dry basis	30.0 to 50.0 per cent.
(v) Caffeine content on dry basis	30.0 to 50.0 per cent.
(vi) Aqueous extracts	Not more than 50 per cent";

(b) for item A. 08.05, the following shall be substituted, namely:-

A.08.05 - Instant Coffee - Chicory Mixture means the product manufactured from roasted and ground coffee and roasted and ground chicory. It shall be in sound dry and dust free condition with no rancid or abnoxious falvour. It shall be in the form of a free flowing powder having the colour, taste and flavour characteristics of coffee chicory powder. It shall be free from any impurities and shall not contain any other add substance. The coffee content in the mixture shall not be less than 51 per cent by mass on dry basis. The percentage of coffee and chicory used shall be marked on the label as provided in clause (ii) sub-rule (A) of rule 42.

It shall conform of the following standards, namely:-

(i) Moisture	Not more than 4.0 per cent.
(ii) Total ash on dry basis	7.0 to 10.0 per cent.
(iii) Acid insoluble ash on dry basis.	Not more than 0.6 per cent.
(iv) Caffeine (anhydrous) on dry basis.	Not less than 1.4 per cent.
(v) Solubility in boiling water.	Dissolves readily in 30 second with moderate stirring
(vi) Solubility in cold water at 16+20C	Soluble with moderate stirring in 3 minutes',

(c) in item A. 19, clause (vi) shall be deleted.

[No. P-15014/6/2001-PH(food)]
DEEPAK GUPTA, Jt. Secy.

Note :- The Prevention of Food Adulteration Rules, 1955 were published in Part II, Section 3 of Gazette of India vide S.R.O. 2105 dated 12-9-1955 and were last amended vide G.S.R. No. 320 (E) dated 2-5-01.

GOVERNMENT OF INDIA

Ministry of Finance
Department of Revenue
Central Board of Excise & Customs

New Delhi, the 07th September 2001.

16 Bhadrapada 1923 (Saka)

NOTIFICATION

No. 41/2001-NT-CUSTOMS

GSR. - In exercise of powders conferred by section 156 of the Customs Act, 1962 (52 of 1962), the Central Government hereby makes the following rules further to amend the Customs Valuation (Determination of Price of Imported Goods) Rules, 1988, namely :-

1. (1) These rules may be called the Customs Valuation (Determination of Price of Imported Goods) Amendment Rules, 2001.

(2) They shall come into force on the date of their publication in the Official Gazette.

2. In the Customs Valuation (Determination of Price of Imported Goods) Rules, 1988.

(i). For rule 3, the following rule shall be substituted, namely:-

"3. Determination of the method of valuation - For the purposes of these rules,

(i) Subject to rules 9 and 10A, the value of imported goods shall be the transaction value;

(ii) If the value cannot be determined under the provisions of clause (i), the value shall be determined by proceeding sequentially through rules 5 to 8 of these rules.'

(iii) In the provision to sub-rul (2) of rule 4, clauses (a), (b), (c) and (d) shall be respectively renumbered as clauses (c), (f),(g) and (h) thereof and before clause (e) so re-numbered, the following clauses shall be inserted, namely:-

"(a) the sale is in the ordinary course of trade under fully competitive conditions;

(b) The sale does not involve any abnormal discount or reduction from the ordinary competitive price.

(c) the sale does not involve any abnormal discounts limited to exclusive agents;

(d) objective and quantifiable data exist with regard to the adjustments required to be made, under the provisions of rule 9, to the transaction value'.

(R.PRASAD)

UNDER SECRETARY TO THE GOVERNMENT OF INDIA

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PRESSS NOTE

Govt. has issued a draft notification vide GSR 672(E) dated 17.09.2001 proposing amendment of certain provisions of PFA Rules, 1955 regarding the jurisdiction of the Central Food Laboratories, the analysis fee prescribed for analysis of imported food samples in the Central Food Laboratories and restriction on advertisment of food which is misleading or contravening the provisions of PFA Act /Rules.

The changes in the present jurisdiction of the Central Food Laboratories have been proposed keeping in view the work load and standards of the Laboratories and also due to creation of new states of Uttaranchal, Jharkhand and Chattisgarh.

It is also proposed to enhance the fee payable to Central Food Laboratories for analysis of samples of imported food from existing Rs. 1000/- per sample to Rs. 3000/- per sample due to higher operating costs.

Restriction on advertisement of any food which is misleading or contravening the provisions of Prevention of Food Adulteration Act or Rules there under has been extended to cover print, electronic media, internet and web-site also.

Objections / suggestions on the above proposals may please be sent to Secretary, Deptt. Of Health within 60 days.

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PRESS NOTE

Govt. of India have issued following notifications in the official Gazette calling for public comments on the proposals to amend the PFA Rules, 1955.

GSR 667 (E) Dated 17.9.2001	Lay down standards for total ash, water soluble matter and acid insoluble ash in coffee-chicory mixture. It is also proposed to delete BR regarding in the standards of Vanaspati.
GSR 668 (E) Dated 17.09.2001	Ravises the approximate quantity of food samples with or without preservatives to be sent to the Public Analyst /Director, Central Flood Lab. For analysis of all the parameters. Also proposes to revise From II & Form III relating to certificate of test or analysis by the Public Analyst /CFL.
GSR 669 (E) Dated 17.09.2001	Relates to sugar added in carbonated water, package of food having added caffeine, use of lake colours of sunset yellow FCF in powdered soft drinks, antifoaming agents in Jam, Jellies & Marmalades and restricting natural flavour preparations made from animal raw material.
GSR 671 (E) Dated 17.09.2001	Relates to tolerance limit of Gamma isomer in milk products.
GSR 681 (E) Dated 21.09.2001	Proposes certain microbiological parameters for infant milk food, malted food and malted milk food.

Objections / suggestions have been invited from the public within a period of sixty days for consideration of the Govt. before the amendments are finalized The comments may be addressed to the Secretary, Depart. Of Health, Nirman Bhavan, New Delhi 110 011.

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PRESS NOTE

The Government has issued a notification vide GSRNo. 666 (E) dated 17-9-2001 Publishing draft rules further to amend the Prevention of Food Adulteration Rules 1955, which seek the declaration with regard to the addition of fruit pulp, juice, colour and artificial sweetner (wherever permitted under these rules) as well as the date of manufacture and "best before" date on the body of bottles containing beverages and soft drinks instead of giving such a declaration on the crown of the bottles.

The proposed draft rules also state that all new bottles must have labeling accordingly. However, a time period of five years has been given in a phased manner to phase out the existing returnable bottles to comply with the requirement of labeling under this notification.

Objections and suggestions have been invited from Public within a period of sixty days for consideration of the Government before these amendments to the existing Prevention of Food. Adulteration Rules are finalized. The comments may be addressed to the Secretary, Department of Health, Nirman Bhavan, New Delhi. 110011.

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MINISTRY OF HEALTH AND FAMILY WELFARE

(Department of Health)

NOTIFICATION

New Delhi, the 17th September, 2001

G.S.R.666(E). - The following draft of certain rules further to amend the Prevention of Food Adulteration Rules, 1955 which the Central Government, after consultation with the Central Committee for Food Standards, proposes to make, in exercise of the power conferred by the sub-section (1) of section 23 of the Prevention of Food Adulteration Act, 1954 (37 of 1954), is hereby published as required by the said sub-section for the informtion of all persons likely to be affected thereby, and notice is hereby given that the said draft rules will be taken into consideration on or after the expiry of a period of sixty days from the date of which copies of the Gazette of India in which this notification is published, are made available to the public.

Objections or suggestions, if any, may be addressed to the Secretary, Ministry of Health and Family Welfare, Government of India, Nirman Bhavan, New Delhi.

The objection or suggestion which may be received from any person with respect to the said draft rules before the expiry of the period so specified, will be considered by the Central Government.

DRAFT RULES

1. (i) These rules may be called the Prevention of Food Adulteration (......Amendment) Rules, 2001.

(ii) They shall come into force on the date of their final publication in the Official Gazette.

2. In rule 32 of the Prevention of Food Adulteration Rules, 1955, in clause (i), after fourth proviso, the following provisos shall be inserted, namely :-

"Provided also that in case of any bottle containing liquid milk or liquid beverage having milk as an ingredient, soft drink, carbonated water or ready to serve fruit beverages, the declarations with regard to addition of fruit pulp, juice, colour, flavour and artificial sweetener (wherever permitted under these rules) as well as the "date of manufacture' and "best before date" shall invariably appear on the body of the bottle.

Provided also that in case of returnable bottles which are recycled for refilling, where the label declarations are given on the crown, the declaration referred to in the above proviso, except the "date of manufacture" and "best before date" shall be enforced as per the Schedule given below. The bottles on which the year of manufacture in not embossed, the date 1st day of April, 2006, shall apply.

SCHEDULE

S.NO.	Year of manufacture Embossed on the bottle	Date of enforcement of the referred to in the first proviso by Replacing old bottles with new bottles.
1.	2000 and beyond but before the commencement of the prevention of Food Adulteration (......Amendment) Rules, 2001.	1.4.2006
2.	1999	1.4.2005
3.	1998	1.4.2004
4.	1997	1.4.2003
5.	1996	1.4.2002
6.	1995 and before	From the date of commencement of the Prevention of Food Adulteration (..........Amendment) Rules, 2001.

Provided also that the returnable new glass bottle manufactured and used for packing of such beverages on the date of commencement of the Prevention of Food Adulteration (...Amendment) Rules, 2001, shall carry these declarations on its body".

[No. P-15014/3/2000-PH (food)]
DEEPAK GUPTA, Jt. Secy.

Note : The Prevention of Food Adulteration Rules, 1955 were published in Part II, Section 3 of India vide S.R.O. 2105 dated 12-91955 and were last amended vide No. G.S.R. 320 (E) dated 2.5.01.

MINISTRY OF HEALTH AND FAMILY WELFARE

(Department of Health)

NOTIFICATION

New Delhi, the 21st September , 2001.

G.S.R 681 (E). - The following draft of certain rules further to amend the Prevention of Food Adulteration Rules, 1955, which the Central Government after consultation with Central Committee for Food Standards, proposes to make, in exercise of the power conferred by the sub-section (1) of section 23 of the Prevention of Food Adulteration Act, 1954 (37 of 1954) , is hereby given that the said draft rules will be taken into consideration after the expiry of a period of sixty days from the date on which the copies of the Official Gazette in which this notification is published, are made available to the public;

Objections or suggestions, if any , may be addressed to the Secretary, Ministry of Health and Family Welfare, Government of India, Nirman Bhavan, New Delhi - 110 001.

The objections and suggestions which may be received from any person with respect to the said draft rules within the period specified above, will be considered by Central Government.

DRAFTRULES

1. (1) These rules may be called the Prevention of Food Adulteration (..........Amendment) Rules, 2001.

   (2) They shall come into force after six months from the date of their final publication in the Official Gazette.

2. In the Prevention of Food of Food Adulteration Rules, 1955, in Appendix B,-

   (a) in item, A.11.02, 18 relating to INFANT MILK FOOD, in the standards; after serial number 32, the following shall be inserted, anmely,-

"33. Yeast and mould cocunt	absent in 01. gm
34. Salmonella and Shigella	absent in 0.1 gm
35. E. Coil	absent in 0.1 gm
36. Vibrio cholera and V. Paraheamolyticus	absent in 0.1 gm
37. Faecal streptococci and Staphy lococcus aureas	absent in 0.1 gm",

   (b) in item A.11.02.18.02, relating to ENFANT FORMULA, in the standards, after serial number 32, the following shall be inserted, namely,-

"33. Yeast and mould count	absent in 0.1 gm
34. Salmonella and Shigella	absent in 0.1 gm
35. E.Coil	absent in 0.1 gm
36. Vibrio Cholera and V.Paraheamolyticus	absent in 0.1 gm
37. Faecal streptococci and Staphylococcus aureas	absent in 0.1 gm";

(C) in item A.11.02.18.02, relating to MILK-CEREAL BASED WEANING FOOD, in the standards, after serial number 12, the following shall be inserted, namely,

"13, Yeast and mould count	absent in 0.1 gm
14. Salmonella and Shigella.	absent in 0.1 gm
15. E.Coil	absent in 0.1 gm
16. Vibrio cholera and V. Paraheamolyticus	absent in 0.1 gm
17. Faecal streptococci and Staphylococcus aureas	absent in 0.1 gm

(d) in item A. 11.02.18.03, relating to PROCESSED CEREAL BASED WEANING FOOD, in the standards, after serial number 15, the following shall be inserted, namely

"16. Yeast and mould count	absent in 0.1 gm
17. Salmonella and Shigella	absent in 0.1 gm
18. E.Coil	absent in 0.1 gm
19. Vibrio cholera and V.Paraheamolyticus	absent in 0.1 gm
20. Faecal streptococci and Staphylococcus aureas	absent in 0.1 gm

(e) in item A. 18.12, relating to MALTED MILK FOOD, in the standards after serial number (i), the following shall be inserted, namely, -

(k) Yeast and mould count	absent in 0.1 gm
(i) Salmonella and Shigella	absent in 0.1 gm
(m) E.Coil	absent in 0.1 gm
(n) Vibrio cholera and V. Paraheamolyticus	absent in 0.1 gm
(o) Faecal streptococci and Staphylococcus aures	absent in 0.1 gm

(f) in item A. 18.12.01, relating to MALT BASED FOOD (MALT FOOD), in the standards, after serial number (j) the following shall be inserted, namely, -

"(k) Vibrio cholera and V. Paraheamolyticus	absent in 0.1 gm
(i) Faecal strepiococci and Staphylococcus aureas	absent in 0.1 gm

[No. P-15014/13/99-PH(Food) Vol. II]

DEEPAK GUPTA, Jt. Secy.

Note : The Prevention of Food Adulteration Rules, 1955 were published in Part II, Section 3 of Gazette of India vide S.R.O. 2105 dated 12-9 - 1955 and were last amended vide G.S.R. No. 320 (E) dated 2-5-2001.

No. P 15025/1/2001 PH(F)
Directorate General of Health Services

Nirman Bhawan, New Delhi
Date 12.2001

To

1) The Secretary,
Confederation of Indian Industries,
23, Industrial Area, Lodi Road,
New Delhi - 110 003

2) The Director,
Confederation of Indian Food Trade and Industries,
New Delhi - 110 001

Subject : Implementation of provisions for labelling on Food Packages as Non-vegetarian by a symbol and colour code.

Sir,

As you are aware that the provisions of rule 32 and 42 as amended vide No. GSR 245 (E) dt. 4.4.2001 have come w.e.f. 4.10.2001. A survey of markets like Khan Market and Vasant Lok Market conducted by the Directorate reveals that label of the packets of food do not find in conformity to the existing rules, i.e. non-vegetarian food symbol and colour code was not displayed on the label of the packages of food.

You are, therefore, requested to kindly inform your member companies dealing with food processing and packing to comply with the existing provisions of labelling as specified in the PFA Rules, 1955, so as to avoid any legal complications.

The receipt and action taken in the matter may kindly by intimated to this Directorate at the earliest.

Yours faithfully,
sd/-
(Dr. S. R. Gupta)
Assistant Director General (PFA)

Copy to : Other Trade Associations for similar action.

sd/-
(Dr. S. R. Gupta)
Assistant Director General (PFA)

STUDIES ON STORAGE LIFE OF *JAMUN* PRODUCTS

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ABSTRACT

The physico-chemical changes in *jamun* products during storage were observed. TSS and reducing sugars increased whereas the total sugars and acidity decreased slightly. Total phenolics (tannins) decreased throughout the storage period . Anthocyanin pigments rapidly degraded during six months storage. The maximum retention of anthocyanin pigments was in jam followed by syrup, squash and RTS beverage. The *jamun* products stored in colorless glass bottles were accepted even after six months of storage at ambient conditions. The appearance, colour, flavour, texture, taste and overall acceptability were found to be good.

INTRODUCTION

Jamun (*Syzygium cuminii* skeels) fruit is an important member of the family, Myrtaceae, It is widely grown throughout India and other tropical and sub-tropical countries. The ripe *jamun* fruit has an attractive bright purple colour and excellent taste with some therapeutic and nutritive value. *Jamun* is used to treat diabetes and dysentery. The bright purple colour of *jamun* juice is mainly due to water-soluble pigments like anthocyanins, which can be successfully used for straight and blended beverages. *Jamun* juice is acidic and astringent and therefore not generally preferred. Attempts were therefore made to prepare different products. Very little information is available on the processing of *jamun* fruits. The present study was undertaken to assess the storage life of *jamun* fruit products.

MATERIALS AND METHODS

Material : The experiment was conducted in the Home Science College and Research Institute, Tamil Nadu Agricultural University, Madurai, Tamil Nadu. Fully ripe and healthy *jamun* fruits were procured from the orchard of Agricultural College and Research. Institute, Madurai. The fruits were washed thoroughly with running water. The seeds were removed by hand and the pulp was ground in mixie and heated at 60°C for one minute. The juice was extracted from crushed *jamun* pulp through double fold muslin cloth.

Methods : Ready-to-serve (RTS) beverage, squash and jam were prepared by adding 20, 25, 30 and 65 percent of juice as specified in the Fruit Products Order, (1955). Sugar was added to raise the TSS to 20, 45, 65 and 69°Brix for RTS, squash, syrup and jam respectively. The ready-to-serve beverage and squash were prepared by the addition of sodium benzoate at 220ppm and 700ppm of finished product, respectively whereas the syrup and jam were heat processed. The RTS beverage, squash and syrup were packed in 200ml sterilized glass bottles and the jam packed in 200ml sterilized broad-mouth glass bottles. The mean minimum and maximum ambient temperature during storage were 27°C and 36.1°C, respectively.

The *jamun* products were evaluated organoleptically for colour, flavour and taste by ten judges including both male and female scientists aged 25-35 years, who scored on a nine point Hedonic scale of Amerine et al., (1965) at an interval of three months. The ready-to serve beverage and jam were tasted as such, whereas the squash and syrup were diluted three and five times, respectively adding chilled water.

The total soluble solids (Brix) was determined with a hand refractometer. The pH was measured by a spectronic pH meter at 28°C (A.O.A.C., 1975). Acidity, tannins total and reducing sugars were estimated by the procedures of Ranganna (1986). The total anthocyanin pigments were measured by the method suggested by Khurdiya and Roy (1985).

RESULTS AND DISCUSSIONS

The edible portion in ripe *jamun* fruits was 75 percent. The pulp to seed ratio was 3.1:1. The recovery of juice from the fruit was 64.4 percent and the pomace content 23.9 percent while the preparation losses were 11.7 percent. Total extraction of the juice was not possible due to losses during extraction. Jamun juice is a good source of anthocyanin pigment and phenolic compounds, their contents being 196 mg and 500mg per 100ml of juice respectively.

The physico-chemical changes in *jamun* products during storage are presented in Table-1. The total soluble solids (TSS) of the *jamun* products showed a gradual increase during the storage period of RTS, squash , syrup, and jam (20.5-22.5; 45.0-47.5; 70.0 72.5; 69.0-71.5 respectively), which might be due to partial hydrolysis of complex carbohydrates. Total sugars of the *jamun* products showed a gradual decrease during storage period of RTS, squash, syrup and jam (20.5-18.5; 39.0-37.2; 64.0-62.0; 57.7-55.0 respectively). The reducing sugars increased during storage of the products of jamun, RTS, squash, syrup and jam (9.7-16.5; 18.3 - 23.5; 39.4-46.6; 30.1-36.5 respectively) which may be through the hydrolysis of non-reducing sugars. Similar observations were reported by Jain et al (1984). The percentage of reducing sugars (40.11- 45.89 percent) continued to increase while non-reducing sugars showed a descending trend in different types of fruit squashes during storage; rise in the level of reducing sugars might be assigned to the conversion of non-reducing sugars owing to the process of hydrolysis.

Acidity decreased slightly during storage of RTS, squash, syrup, and jam (0.30-0.27; 1.20-1.16; 2.00-1.96; 0.86-0.82 respectively) which might be due to chemical interactions between organic acid and anthocyanins whereas the pH remained not much changed during the storage period. The total phenolics (tannins) decreased throughout the storage period of RTS, squash, syrup, and jam (150-105; 170-120; 220-170; 350-300 respectively). The anthocyanin pigments rapidly degraded during storage of RTS, squash, syrup, and jam (51.3 - 7.5; 53.4 -12.5; 112.8-26.6; 143.2 -78.4 respectively) which may be due to hydrolysis of the protective 3- glucoside linkages to give unstable anthocyanins. Similar findings were reported by Waskar and Khurdiya (1987) in *phalsa* beverages. The loss of anthocyanin pigment in *jamun* products was slow during the initial storage period (27°C) because of the low storage temperature but increased with the increase in storage temperature (36.1°C). After six months storage, the maximum retention of anthocyanin pigments was in jam followed by syrup and squash with the lowest in RTS beverage. This could be attributed to the high sugar content of the jam, which might have helped in retaining the anthocyanin pigment.

The *jamun* products viz., RTS, squash, syrup, and jam stored in colorless glass bottles were acceptable even after six months storage at room temperature (Table -2). RTS beverage and jam showed a rise (6.9-7.4; 6.7-6.8,) than a fall in organoleptic score during storage where as continuous decrease (6.9 -6.2; 6.9-6.3) was noticed in squash and syrup. The higher organoleptic score could have been due to the more refreshing nature to the judges at a high room temperature and the fall in score due to deteriorating quality.

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Table - 1. Physico-chemical analysis of *jamun* products during storage at ambient temperature.

Product	Storage period (month)	TSS (°Brix)	Acidity (%)	pH	Total sugars (%)	Reducing sugars (%)	Anthocyanins (mg%)	Tannins (mg%)
Ready -to-serve Beverage	Initial	20.0	0.30	3.90	20.5	9.7	51.3	150
	3	21.0	0.28	3.92	19.5	10.5	21.5	125
	6	22.5	0.27	3.94	18.5	16.5	7.5	105
Squash	Initial	45.0	1.20	3.06	39.0	18.3	53.4	170
	3	46.0	1.18	3.00	38.0	19.5	34.0	140
	6	47.5	1.16	3.10	37.2	23.5	12.5	120
Syrup	Initial	70.0	2.00	2.65	63.0	39.4	112.8	220
	3	71.0	1.98	2.67	62.2	42.7	85.1	200
	6	72.5	1.96	2.68	69.2	46.6	26.6	170
Jam	Initial	69.0	0.85	3.25	57.7	30.1	143.2	350
	3	70.0	0.84	3.15	56.5	33.3	110.3	330
	6	71.5	0.82	3.18	55.0	36.5	78.4	300

Table-2. Organoleptic score of *jamun* fruit products during storage at ambient temperature.

Product	Storage period (months)	Colour	Flavour	Texure	Average score
Ready to-serve Beverage	Initial	7.5	6.4	-	6.9
	3	7.3	8.6	-	8.1
	6	7.0	7.3	-	7.4
Squash	Initial	7.3	6.5	-	6.9
	3	6.9	6.3	-	6.6
	6	6.4	6.1	-	6.2
Syrup	Initial	7.2	6.2	-	6.9
	3	7.1	6.4	-	6.7
	6	6.5	6.1	-	6.3
Jam	Initial	7.7	6.6	6.0	6.7
	3	7.4	7.0	6.4	6.8
	6	7.1	6.9	6.4	6.8

STORAGE STABILITY OF DEHYDRATED CURRY LEAF (*Murraya koenigii* L.), ROSEMARY (*Rosmarinus officianlis* L.) AND MARJORAM (*Majorana hortensis* M.) IN DIFFERENT PACKAGING MATERIALS

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ABSTRACT

Storage studies were carried out on dehydrated rosemary, curry leaf and marjoram using three rigid containers made of glass, high density polyethylene (HDPE), polyethylene terepthalate (PET) and also using a flexible aluminium foil pouch under elevated (92% RH, 38°C) and ambient (65% RH, 27°C) conditions. The powders were analysed periodically at an interval of 30 days for quality parameters like moisture, volatile oil, chlorophyll and surface colour upto 120 days. Results indicate that the products require either glass or aluminum foil laminate for packaging and storing for more than 6 months. PET and HDPE containers offer storage life between 3 to 6 months for the powders under ambient conditions..

INTRODUCTION

Herbs are preserved in dried form but the temperature and method of drying vary with the nature of the herb. Culinary herbs are traded internationally as dried herbs. Milling of herbs will change the organoleptic profile because the essential oils are usually exposed to high temperature in the presence of oxygen and moisture. Cryogenically milled herbs with liquid nitrogen are generally lighter in colour with more volatiles than those milled at ambient conditions (Pruthi, 1980). Ground herbs and spices change in storage more rapidly than the whole product. Ground herbs are sensitive to vagaries of climate and are prone to various types of changes such as loss of volatile oil, free flow property, microbial spoilage and insect infestation during storage and distribution. Pigments in herbs get discolored considerably when exposed to light and oxygen. Further, losses of essential oils result in considerable deterioration in quality (Tucker and Maciarello, 1993). A functional package for ground herbs should offer protection against physico-chemical, microbiological spoilage and infestation. But the package for herbal powders designed for export should conform to the food laws of the importing countries and should be economical and easily available.

The selection and design of a functional packaging material is dictated by factors like product characteristics, the type of environmental condition and distributional hazards encountered, the required storage life and economic consideration (Balasubramanyam and Indiramma, 1989). Storage temperature is the most important factor influencing the shelf life of the ground herbs. The most important requirement for the ground herbs is to give long shelf life and preservation as long as possible with their original color and flavour.

MATERIALS AND METHODS

Preparation of herbal powders: Freshly harvested curry leaves procured from the local market and rosemary and marjoram from Ootacamund (Tamil Nadu) were washed under running water and drip dried. They were evenly spread in trays and dried in cross - flow drier at 50°C for 6-7 h and the dried materials were crushed and ground in multipurpose mill. The ground herbs were packed in polythene pouches, placed in tin containers and stored at 4°C for use in packaging studies.

Moisture sorption studies : In order to ascertain the packaging requirement of herbal powders, equilibrium relative humidity (ERH) studies were conducted at 27± 1°C.

Known weights of herbal powders were spread in petri dishes uniformly and exposed to different relative humidifies ranging from 11-92% built in desiccators using appropriate saturated salt solutions (Rockland, 1960). The samples were weighed periodically till they attained constant weight or showed sign of visible microbial growth and analysed initially and after equilibration for the quality parameters such as moisture, volatile oil (ASTA, 1985), chlorophyll and colour value according to standard procedures (Ranganna, 1986).

Storage parameters : Three rigid packages, namely, high density polyethylene (HDPE), glass and polyethylene terepthalate (PET) jars were selected for storage, besides one flexible pouch made of aluminium foil laminate for comparison with the rigid containers. The water vapor transmission rate (BIS 1060 Part II) of the packages was determined to understand the extent of moisture protection and the characteristics of the packages.

Two storage conditions, namely, (i) elevated (92% RH and 38°C) and (ii) ambient (65% RH and 27°C), were selected for the studies as per the specifications laid down by Bureau of Indian Standards (BIS 1060 Part II).

The herbal powders packed in the selected packages were initially weighed and exposed to the above storage conditions. The containers and the pouches were withdrawn periodically at an interval of 30 days of storage and analysed for the quality parameters upto 120 days of storage. The samples were also observed for visual changes.

RESULTS AND DISCUSSION

Sorption characteristics : All the three powders had a critical relative humidity of 64% RH, thereby indicating that they do not need a very high moisture barrier material for storage at and below 64% RH. But if it is to be stored above 64% RH, they need a good protection against moisture. The products with initial moisture between (3.0-5.5%) are equilibrated to 20-35% RH. The three dehydrated herbal powders remained free-flowing upto the moisture level of 10.78, 10.63 and 9.98% in case of rosemary, curry leaf and marjoram respectively. Beyond these moisture levels, powders became lumpy, discoloured and were not acceptable. Results also suggest that moisture content of 7.8, 10.6 and 10.0% (RH 64%) is critical in the case of rosemary, curry leaf and marjoram respectively. At more than 75% RH, the products showed a high tendency for caking with dull colour and loss of flavour. Practically there was not much difference in the quality parameters in equilibrated products between 11-64% RH.

Storage Studies : The changes in quality parameters of leafy spice / herbal powders during storage are as follows:

***Moisture content* :** It can be seen from Table-1 that moisture pick - up is more in leafy spice/ herbal powders stored in PET bottles under both storage conditions when compared to the other packaging materials irrespective of the nature of the herb as expected. In elevated condition, the moisture content of curry leaf and rosemary, crossed the critical level of 10.6 and 7.8% in 60 days of storage and in case of marjoram, it crossed the critical level of 10.0% in 30 days of storage. The moisture pick-up was lesser in samples stored in HDPE jars than in glass jars as expected from their WVTR values (WVTR for glass bottles and HDPE jar are 0.05 and 0.03 respectively).

Volatile oil : Loss of volatile oil was found in curry leaf, rosemary and marjoram powders in all the packages under both storage conditions (Table-2). Curry leaf and marjoram, when stored in glass jars and aluminium foil laminate pouch, showed similar retention of volatile oil (>68%) in both the conditions. In case of rosemary, the loss of volatile oil in samples stored in aluminium foil laminate pouches was negligible whereas the loss was almost double in sample stored in PET jars compared to glass bottles in both the storage conditions. The loss of volatile oil of rosemary stored in HDPE bottles was maximum. It was observed that the loss of volatile oil was more in samples stored at elevated condition than at ambient condition which may be due to the volatile nature of essential oils present in these herbs.

Chlorophyll content : There was loss of chlorophyll content irrespective of packaging materials and storage conditions employed in the experiment (Table-3). Retention of chlorophyll was 33% in curry leaf when stored in PET bottles, at elevated condition and 44% at ambient condition. In case of rosemary, the retention was maximum (90%) in aluminium foil laminate pouches at ambient condition and the samples stored in other packages showed the retention in the range of 40-80% in both the conditions. In case of marjoram, the retention of chlorophyll range from 50-33% when stored in elevated condition and 70-55% in ambient condition.

Color by reflectance : The change in surface colour in terms of 'a' value of the herbal powders is shown in Table-4. The green colour of the herbs decreased during storage which is indicated by either decrease in negative values. or increase in positive values. Curry leaf when stored in PET jars and glass bottles, showed the change of 'a' value from negative to positive indicating the loss of green color during accelerated storage while the loss was minimum in ambient condition.

In all the samples, the loss of green colour was more in glass and PET jars than in the other two packages. Also, the loss was more in elevated than in ambient condition.

CONCLUSION

The herbal powders need glass bottles / aluminium foil laminate pouches for longer storage (over 6 months) under ambient conditions. Either PET or HDPE can be used for short term storage between 3 to 6 months under ambient conditions. To withstand high temperature and humidity, the product has to be packed in either glass bottle or aluminium foil laminate pouch.

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Table 1. Changes in moisture content (% dmb) of herbal powders during storage

Product	Package	92% RH, 38°C				65% RH, 27°C			
		30 days	60 days	90 days	120 days	30 days	60 days	90 days	120 days
Curry leaf 4.5*	HDPE jar	4.6	4.7	4.7	4.8	4.6	4.7	4.7	4.7
	PET jar	8.9	11.4	13.9	15.7	5.5	6.6	7.4	7.7
	Glass jar	5.2	6.5	6.9	7.4	4.4	5.1	5.5	5.7
	Al-foil pouch	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Rosemary 3.5*	HDPE jar	3.7	3.7	3.8	3.9	3.6	3.6	3.7	3.8
	PET jar	7.6	9.3	9.7	10.2	4.1	4.7	5.1	5.4
	Glass jar	4.8	5.2	5.8	6.0	3.3	4.0	4.5	4.9
	Al-foil pouch	3.5	3.5	3.5	3.6	3.5	3.5	3.5	3.5
Marjoram 5.5*	HDPE jar	5.6	5.8	6.1	6.6	5.5	5.6	5.6	5.6
	PET jar	10.2	13.6	14.5	18.8	6.5	7.5	8.1	9.4
	Glass jar	7.0	8.3	8.9	9.5	5.4	6.1	6.9	7.5
	Al foil pouch	5.5	5.5	5.5	5.5	5.5	5.5	5.9	6.0

* Initial moisture content (%)

Table 2. Changes in volatile oil content (% dmb) of herbal powders during storage

Product	Package	92% RH, 38°C				65% RH, 27°C			
		30 days	60 days	90 days	120 days	30 days	60 days	90 days	120 days
Curry leaf 0.50*	HDPE jar	0.30	0.26	0.20**	0.18**	0.32	0.27	0.25	0.20
	PET jar	0.35	0.34	0.28**	0.26**	0.38	0.37	0.35	0.35
	Glass jar	0.42	0.42	0.37	0.34	0.46	0.45	0.42	0.42
	Al-foil pouch	0.42	0.42	0.37	0.34	0.46	0.45	0.42	0.42
Rosemary 0.87*	HDPE jar	0.50	0.45	0.34**	0.28**	0.52	0.48	0.35	0.30
	PET jar	0.63	0.44	0.40**	0.33**	0.72	0.68	0.64	0.54
	Glass jar	0.68	0.65	0.65	0.60	0.72	0.72	0.72	0.71
	Al-foil pouch	0.83	0.83	0.82	0.82	0.86	0.85	0.84	0.84
Marjoram 0.80*	HDPE jar	0.71	0.69	0.58**	0.29**	0.72	0.70	0.62	0.30
	PET jar	0.78	0.77	0.75**	0.33**	0.77	0.77	0.66	0.64
	Glass jar	0.72	0.71	0.52	0.52	0.76	0.76	0.75	0.75
	Al-foil pouch	0.79	0.79	0.63	0.55	0.75	0.75	0.75	0.75

* Initial moisture content (%)

** Flavour deteriorated

Table 3. Changes in chlorophyll content (%) of herbal powders during storage

Product	Package	92% RH, 38°C				65% RH, 27°C			
		30 days	60 days	90 days	120 days	30 days	60 days	90 days	120 days
Curry leaf 0.384*	HDPE jar	0.288	0.260	0.258	0.214	0.289	0.290	0.289	0.288
	PET jar	0.207	0.188	0.087	0.086	0.280	0.261	0.175	0.135
	Glass jar	0.241	0.227	0.226	0.160	0.316	0.292	0.281	0.242
	Al-foil pouch	0.262	0.247	0.227	0.222	0.306	0.281	0.275	0.263
Rosemary 0.154*	HDPE jar	0.112	0.097	0.078	0.070	0.156	0.128	0.128	0.120
	PET jar	0.071	0.069	0.068	0.060	0.103	0.073	0.071	0.070
	Glass jar	0.082	0.069	0.063	0.059	0.010	0.090	0.086	0.075
	Al-foil pouch	0.146	0.128	0.123	0.113	0.154	0.152	0.152	0.138
Marjoram 0.508*	HDPE jar	0.385	0.359	0.269	0.240	0.387	0.361	0.355	0.303
	PET jar	0.299	0.278	0.205	0.164	0.312	0.291	0.290	0.291
	Glass jar	0.312	0.283	0.270	0.191	0.308	0.292	0.291	0.284
	Al foil pouch	0.384	0.301	0.301	0.244	0.390	0.358	0.351	0.352

* Initial chlorophyll content (%)

Table 4. Changes in 'a' value of herbal powders during storage

Product	Package	92% RH, 38°C				65% RH, 27°C			
		30 days	60 days	90 days	120 days	30 days	60 days	90 days	120 days
Curry leaf -1.583*	HDPE jar	-0.816	-0.775	-0.535	-0.511	-1.216	-1.185	-1.112	-1.106
	PET jar	2.207	2.237	2.461	2.482	-0.524	-0.524	-0.523	-0.441
	Glass jar	-0.062	0.591	0.096	0.224	-0.948	-0.813	-0.423	-0.403
	Al-foil pouch	-0.981	-0.856	-0.727	-0.680	-1.069	-1.056	-1.049	-1.002
Rosemary 1.028*	HDPE jar	3.316	3.332	3.348	3.348	2.053	2.111	2.125	2.167
	PET jar	3.207	3.756	3.907	3.993	2.685	2.956	3.111	3.131
	Glass jar	3.615	3.711	3.724	3.860	2.966	3.012	3.176	3.178
	Al-foil pouch	2.081	2.285	2.370	2.494	1.102	1.532	1.946	1.998
Marjoram 2.034*	HDPE jar	2.473	2.621	2.778	3.261	2.038	2.135	2.145	2.255
	PET jar	2.373	3.899	4.053	4.217	2.007	2.053	2.076	2.086
	Glass jar	2.776	3.158	3.417	3.862	2.120	2.135	2.155	2.263
	Al foil pouch	2.467	2.859	2.960	3.056	2.187	2.205	2.235	2.343

* Initial value

PHYSICO-CHEMICAL CHARACTERISTICS OF *AONLA (EMBLICA OFFICINALIS* GARTEN) CV. *CHAKAIYA*

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ABSTRACT

Fresh *aonla* fruits cv. *Chakaiya* were evaluated for their physical and chemical characteristics. The fresh *aonla* fruits were found to be very rich source of ascorbic acid (454.40 mg/100g) and appreciable source of total sugars (7.43 g/100g), calcium (14.91g/100g), iron (0.62 mg/100g) and phosphorus (11.81 mg/100g) and have great potential for processing.

INTRODUCTION

Aonla (*Emblica officinalis* Garten) belongs to the family *Euphorbiaceae* and is essentially a subtropical fruit but can successfully be grown in tropical as well as dry conditions. It is probably the richest known source of ascorbic acid, 300-1000 mg/100g depending upon the cultivar and location (Manny and Shadaksharaswamy, 1997). Its composition makes it of good medicinal value as antisorbutic, diuretic, laxative and antibiotic. The fruit also possesses pronounced expectorant, antiviral, cardiotonic and hypoglycaemic activity (Kalra, 1988; Mehta, 1995).

Chakaiya cultivar also bears heavily, fruits are large, flat and soft and suitable for processing. Therefore, it is important to evaluate the physico-chemical characteristics of fruits of *chakaiya*.

MATERIALS AND METHODS

Fully mature *aonla* fruits, cv. *Chakaiya* were obtained from the Experimentation Orchard of the Department in a single lot. Fruits were washed with clean running water to remove the adhering dust particles and to reduce the microbial load on the surface of the fruits. The colour and shape of the fruits were determined by visual inspection. The size, i.e. length and diameter of 10 fruits was determined with the help of vernier callipers and average was calculated. The average fruits weight was taken using electric weighing balance and then average pulp and seed weight percentage were calculated. Specific gravity of the fruit was measured by water displacement method.

Moisture, crude protein, fat, crude fibre, ash, ascorbic acid and tannins were estimated by the methods of AOAC (1990). Total soluble solids and titrable acidity were estimated by the method of Ranganna (1986). Total and reducing sugars were assessed by the method of Hulme and Narain (1931). Phosphorus was determined colorimetrically by the standard method of analysis given by Chen et al. (1956). Calcium and iron were determined by atomic absorption spectrophotometer according to the method of Lindsey and Norwell (1969). The data were subjected to analysis of variance in a factorial completely randomised design (CRD) according to standard method (Snedecor and Cochran, 1967).

RESULTS AND DISCUSSION

Physical characteristics : The colour of fruit was found to be yellowish green and the shape was round to oblate (Table 1). Ghorai and Sethi (1996), Kalra (1988) and Singh et al. (1963) also reported similar colour and shape of *aonla* fruits in *Chakaiya*. The length of fruits was found to be 3.05 cm whereas the diameter observed was

3.64 cm. The average weight of *aonla* fruit recorded at maturity was 26.32g. The pulp and seed weight percentage and specific gravity of mature *aonla* fruits were found to be 94.98, 5.02 per cent & 1.05, respectively. Ram et al. (1983) reported that specific gravity of *aonla* fruit increased significantly with increase in picking time (i.e from mature to ripe stage).

Chemical composition : On fresh weight basis, the average value of moisture content of fresh fruit was found to be 80.74 per cent (Table 2) The moisture content of whole mature fruit was within the range (79.03-88.06%) as reported by previous workers (Ramasastri, 1974; Tripathi et al., 1988; Gopalan et al., 1995; Mehta, 1995; Ghorai and Sethi, 1996). The crude protein in fresh *aonla* fruits was found to be 0.58 per cent which was similar to those reported by Anonymous (1960) and Gopalan et al. (1995) as 0.5%, Singh et al. (1987) as 0.67% and Mehta (1995) as 0.64% The average values of fat and crude fibre in fresh *aonla* were 0.21 and 3.17 per cent on fresh weight basis. Values of the present study were almost similar to those reported by Anonymous (1960) and Gopalan et al. (1995) and Mehta (1995) as in fresh fruit of *Chakaiya* variety. However, Singh and Johar (1987) reported lower values of crude fibre (2.5%) in *Chakaiya* variety of *aonla*.

The total soluble solids in fresh *aonla* fruits was 10.5 per cent (Table 2). Ram et al. (1983) observed that the TSS of *aonla* fruits increased significantly as the picking dates were increased i.e. the TSS increased as the fruit ripened. Increase in TSS along with ripening may probably be due to accumulation of more sugars in the fruit due to hydrolysis of starch during the later period of fruit growth.

The average total and reducing sugars of fresh mature *aonla* were 7.43 and 5.51 per cent, respectively on fresh weight basis (Table 2). The finding of the present study fall between the range 7.00-9.60 per cent (total sugars) as obtained by Teotia et al. (1968) in fresh *aonla*. In contrast, Mehta (1995) reported relatively higher values i.e. 10.87 and 7.91 per cent for total and reducing sugars, respectively in *Chakaiya* variety of *aonla*. These differences might be due to variations in environmental conditions and stages of maturity.

The acidity expressed as per cent anhydrous citric acid was 1.82 per cent in fresh fruit (Table 2). This is in conformity with the results obtained by Singh and Johar (1987) and Singh et al. (1987). On the contrary, some workers reported higher values for titrable acidity, ranging between 2.17-2.82 per cent in different varieties of *aonla* (Srivastava and Srivastava, 1964; Tripathi et al., 1988; Ghorai and Sethi, 1996). Variation in acidity might be due to locations where the plants were grown.

The mean value for ascorbic acid was 454.40 mg/ 100 g for fresh fruits of *Chakaiya* variety on fresh weight basis (Table 2). The findings of the present study are in accordance with those reported by Mehta (1995) as 477.63 mg/100g. On the contrary, some workers recorded higher values of ascorbic acid i.e. 634.30 mg/100g (Singh and Johar, 1987) and 574.50 mg/100g (Singh et al., 1987) in *Chakaiya* variety of *aonla*.

The mean value of tannin content of fresh aonla was 15.86 per cent (Table 2). Similar finding has been cited by Sethi (1986) who reported 15.31 per cent tannins in fresh fruit on dry weight basis. However, Srivastava and Srivastava (1964) have recorded relatively lower values i.e. 13.85 per cent tannins in fresh fruit on dry weight basis.

Average values of calcium, iron and phosphorus content in fresh fruits were 14.91, 0.62 and 11.81 mg/100g respectively on fresh weight basis. Annonymous (1996) and Gopalan et al. (1995) reported higher values for calcium, iron and phosphorus in fresh *aonla* fruits i.e. 50.0, 1.2 and 20.0 mg /100 g on fresh weight basis.

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Table : 1. Physical characteristics of *aonla* fruit

Sr. No.		Physical Characteristics at Mature stage
1.	Colour	Yellowish green
2.	Shape	Round to oblate
3.	Size (cm)	
	(i) Length	3.05±0.05
	(ii) Diameter	3.64±0.08
4.	Fruit weight (g)	26.32±1.810
5.	Pulp weight (%)	94.98±0.43
6.	Seed weight (%)	5.02±0.43
7.	Specific gravity	1.05±0.06

. Values are mean ± SE

Table 2. Composition of fresh *aonla* fruits (fresh weight basis)

Sr. No.	Parameters	Fresh Fruit
1.	Moisture (g/100g)	80.74± 0.16
2.	Crude protein (g/100g)	0.58±0.04
3.	Fat (g/100g)	0.21±0.001
4.	Crude fibre (g/100g)	3.17±0.04
5.	Ash (g/100g)	0.52±0.05
6.	Total soluble solids (%)	10.50±0.50
7.	Total sugars (g/100g)	7.43±0.06
8.	Reducing sugars (g/100g)	5.51±0.07
9.	Titrable acidity (g/100g)	1.82±0.08
10.	Ascorbic acid (mg/100g)	454.40±7.69
11.	Tannins (g/100g)	3.05±0.04
12.	Total calcium (g/100g)	14.91±0.03
13.	Total iron (mg/100g)	0.62±0.02
14.	Phosphorus (mg/100g)	11.81±0.11

Values are mean ± SE

STUDIES ON SODIUM AND POTASSIUM CONTENT OF TRADITIONAL BENGAL GRAM FLOUR BASED SNACKS (*FARSAN*)

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ABSTRACT

Based on the popularity of consumption and ease of availability, in all fourteen commonly consumed *Traditional Indian Bengal Gram Flour Based Snacks (Farsans)* were selected for estimating the sodium and potassium contents of each snack using *Flame Spectrophotometer technique.*

Each snack item was obtained from the three most famous *Farsan* houses located in three different zones of Baroda city. Depending upon the values , the snacks were classified as low (<100mg), moderate (100-400 mg), high (400-1000mg) and very high (>1000mg) sodium or potassium containing snacks.

69% had moderate sodium content and rest 31% had high sodium content. 68% had low potassium content, 28% had moderate potassium content and rest 4% had high potassium content. No snack sample having low and very high sodium or very high potassium was recorded.

The sodium content of the snacks ranged from 116.66 mg (*Fulvadi*) as minimum to 846.67 mg (*Usal Sev*) as maximum and the potassium content of the snacks ranged from to 1.67 mg (*Bhavnagri Gathiya and Makhaniya Gathiya*) as minimum to 453.33 mg (*Ratlamni sev*) as maximum.

INTRODUCTION

The present trend followed by the different populations of world involve consumption of high sodium and low potassium diets which contradicts the recommendations made for estimated safe and adequate intake of these minerals[1,2,3]. Imbalanced intake of these minerals has been implicated as a risk factor in the development of hypertension, cardiac, renal, respiratory and skeletal disorders; and neurological problems[4,5,6,7]. With more than three quarter of the presently consumed salt hidden in processed foods, the increase in consumption of sodium in general population followed by decrease in potassium intake is attributed to increased consumption of common salt and various ready-to-eat foods etc. Snack food is an important contributor of sodium either in the form of salt or food additives.

Snacking is a way of life common not only to Indians but also to most people of the world[8]. In the last two decades snack and convenience food market has witnessed a very rapid growth, all over the world. In our country too the traditional homemade pickles, *papads*, *vadis* and *masalas*, as well as extruded products like *sevaiyas* are now gaining popularity.

Thus with an increase in dependence of snack foods globally, knowledge of the sodium and potassium contents of these foods assumes considerable public health significance. The deep-fat fried salted and spiced Bengal gram flour based snacks are most popular in Gujarat. Hence, study was undertaken to formulate a database of sodium and potassium contents of commonly consumed traditional Indian Bengal gram flour based snacks (*Farsan*)

MATERIALS AND METHODS

Based on the popularity of consumption and ease of availability, in all fourteen commonly consumed traditional Indian Bengal gram flour based snacks (*Farsans*) were selected for estimating the sodium and potassium contents.

The sampling of snacks item was as follows :-

Each snack item was obtained from the three most famous *farsan* houses i.e. 'Payal farsan', Jagdish farsan', 'Satyavijay farsan', located in three thickly populated zones of Baroda city i.e. Alkapuri, Sayajigang and Raopura respectively. From the branded food items available in sealed packages, 3 samples of 3 gms each were taken for analysis after homogenizing the contents of the entire packet properly in an electric mixer for 3min.

(A) Analysis of the selected snack items for sodium and potassium contents :-

For estimating the mineral contents, the sample to be analyzed should be prepared in solution and then sprayed under controlled condition into a flame[9].

The following steps are involved in the analysis of the sodium and potassium contents of the selected snack items included in the study:

a) Pre-treatment of the samples.

i) Oven drying and
ii) Dry ashing.

b) Estimation of sodium and potassium contents.

a) Pre-tratment of the samples

i) Oven drying: The standard Oven Drying Technique[10] was used for the removal of moisture from the samples.

Three gms of sample were weighed in a previously dried and weighted crucible. Crucible was placed in an oven maintained at 100±1°C for 3-4 hours.

ii) Dry Ashing : The Standard Dry Ashing Technique [11] was used for the ashing of the samples.

For charring, 3g of dehydrated food sample were taken in a previously weighed, ignited and cooled crucible. It was heated over a low Bunsen flame to volatilize as much of organic matter as possible.

After charring, the crucibles were transferred to a temperature controlled muffle furnace for ashing. Temperature of the furnace was first maintained at 200°C for 30-35 minutes followed by 400°C for 1 hour and finally 600°C for 3-4 hours.

A white, light gray or green coloured ash indicated that the ashing process was complete. If the ash of either of the above - mentioned colours was not obtained, the sample was further heated for 1-2 hours. Finally, the crucible was removed from the furnace and cooled.

b) Estimation of Sodium and Potassium contents

These two minerals were estimated in all the samples by Flame Spectrophotometic Technique[12].

Principle : Sodium or potassium in solution is atomized into an oxyhydrogen or oxyacetylene flame. The flame excites atoms of sodium or potassium causing them to emit radiation at specific wavelengths (598nm and 768nm respectively). The amount of radiation emitted is measured on a spectrophotometer under standard conditions, it is proportional to the concentration of sodium or potassium in the solution.

With sodium in solution, the colour of the flame is golden yellow and with potassium in solution, the colour of the flame is lilac.

Standardization : For standardization of sodium chloride 10 ml of sodium chloride stock solution with 1000 ppm concentration i.e. 1000μg/ml was diluted to 100ml with glass double distilled water. From sodium stock standard solution thus obtained with concentration of 100 µg/ml, 10,20,30,40,50 ml of solution was diluted to 100ml each with double distilled water for sodium estimation. Each aliquot was atomized (as described in procedure after adjusting the air pressure at 0.5 kg/cm² and sensitivity at medium) setting the top standard at 100% transmittance. Luminosity of flame for each concentration was noted. (Table 1). A standard curve was obtained by plotting concentration on abscissa and % luminosity on the ordinate.

The standardization of potassium was also carried out in a similar manner using potassium chloride reagent.

Procedure for estimation of sodium and potassium content of sample solution: For estimating the sodium and potassium contents of sample solution, 10ml of concentrated hydrochloric acid was added to the crucible containing ash sample and the volume was made up to 100ml in volumetric flasks with double distilled water. Further the aliquot was diluted (if required) so that it contains less than 100ppm potassium and less than 100 ppm sodium. Then the solution thus obtained was atomized in a calibrated flame photometer with transmittance set at 100% for the 2 minerals and with wavelength dial set at 598 nm for sodium and 768 nm for potassium. And lastly the concentration of the sample was noted from the standard curve drawn.

Calculation : The sodium and potassium contents of the food sample was calculated using the following formula :

$$K \text{ or } Na = \frac{CxVxDx100}{Wx1000}$$

Where (i) K=Potassium or Na=Sodium (Na) (mg/100g)

(ii) C=Concentration obtained from curve (µg/ml)

(iii) V=Volume made up (ml)

(iv) D=Dilution if any

(v) W=Weight of the sample (g)

III. Categoriation of samples into foods containing Low, Moderate, High and Very High sodium and potassium contents:-

The selected snacks for the present study were classified as follows:-

Low-	Providing <2% RDA (5gm/day) for sodium and <3% RDA (3.5gm/day) for potassium (=<100mg of sodium and potassium).
Moderate-	Providing 3-8% RDA for sodium and 4-11% RDA for potassium (=100 to 400 mg for sodium and potassium).
High -	Poviding 9-20% RDA for sodium and 12-30% RDA for potassium (400-1000mg of sodium and potassium).
Very High -	Providing >20% RDA for sodium and >30% RDA for potassium (>1000mg of sodium and potassium).

In the absence of latest Indian RDA, American values were taken[13].

RESULTS AND DISCUSSION

The results of the study obtained by applying appropriate statistical tests on the collected data are described and discussed under the following heads:

(A) Sodium and potassium content in the *farsans* (snacks) available under different brands viz. (1) *Payal farsan* (2) *Jagdish farsan* and (3) *Satyavijay farsan*.

(B) Classification of analyzed *farsan*, based on the extent of sodium and potassium contents

(A) Sodium and potassium content in the *farsans* (snacks) available under different brands viz. (1) *Payal farsan* (2) *Jagdish farsan* and (3) *Satyavijay farsan*: The sodium and potassium contents of the selected bengal gram flour based snacks is presented in Table-2. The *bengal gram flour* based snacks showed wide variation in sodium and potassium contents not only among different brands but also among different samples of the same brand.

Among the snacks analyzed, highest sodium and potassium contents were found in different varieties of *sevs*.

Sodium content : The sodium content of *bengal gram flour* based snacks ranged from a minimum of 116.66 mg/100g (*Fulivadi- Satyavijay farsan*) to a maximum of 846.67 mg/100gm (*Usal Sev*, 'Jagdish farsan'). There was variation not only among different brands but also among different samples of the same brand.

Highest sodium content was found in the different varieties of *sevs*. The sodium content of *Sevs* ranged from minimum of 238.89 mg (*Machine Sev, 'Jagdish farsan'*) to maximum of 846.67 mg (*Usal Sev, 'Jagdish farsan'*).

Sevs of different *farsan* houses showed wide variation in their sodium contents. Like among the samples of *Tikhi Jade Sev*, 'Jagdish farsan' (786.67mg) had higher sodium content, whereas sodium content of the same from 'Payal farsan' (250.83 mg) and '*Satyavijay farsan*' (316.66 mg) was quite lower. Similarly as depicted in Table -2, variations were seen in sodium content among the samples of *Zini Sev, Ratlami Sev, Usal Sev* and *Machine Sev analysed.*

Ganthiya was another item made from *Bengal gram flour*. Varieties of *Ganthiyas* on the whole showed the sodium content lower than the varieties of *Sev*. The sodium content of *Ganthiya* ranged from a minimum of 122.22 mg (*Bhavnagri Ganthiya, 'Payal farsan'*) to a maximum of 288.89mg (*Bhavnagri Ganthiya, 'Satyavijay farsan'*).

Further it can be seen that *Chakli Ganthiya*, which are spicier than *Bhavnagri Ganthiya*, had lower sodium content when compared to products of the same brands, except for the same from '*Jagdish farsan*', the same results were obtained even when the average values of the three brands of the two varieties of *Ganthiyas* were compared.

Overall '*Satyavijay farsan*' showed higher sodium content in the various varieties of *Ganthiya* followed by '*Jagdish farsan*' and '*Payal farsan*'. The reason for the same could be due to the variation in the type of *Bengal gram flour* used, the amount of salt and soda added while preparing *Ganthiya* as these are the three main ingredients used.

Further, the *Methi Ganthiya* showed the highest sodium content among the samples of *Ganthiya* analysed (Average of three brands was 257.40mg). The possible reason could be addition of *Methi* leaves which are higher in sodium content besides the addition of three main sodium containing ingredients, soda being the chief one.

Fulvadi, yet another variety made from *Bengal gram flour* along with salt, edible oil and spices had sodium content similar to the *Ganthiya* variety. *Fulvadi* from *Jagdish farsan* (187.87 mg) showed higher sodium content compared to the same from '*Payal farsan*' (172.22 mg) followed by the same from '*Satyavijay farsan*' (116.66mg).

Lastly, between the two varieties of *Bhakharvadi* available it was interesting to note that *Sadi Bhakharvadi* (Avg. 231.48mg) had higher sodium content compared to *Methi Bhakharvadi* (122.22mg), which was available only with 'Payal farsan'. Similarly *Sadi Boondi* also had higher sodium content than *Masala Boondi* as shown in Table-2.

Potassium content : The potassium content of *Bengal gram flour* based snacks ranged from minimum of 1.67mg (*Bhavnagri Gathiya*, 'Payal farsan' and *Makhaniya Gathiya*, 'Satyavijay farsan') to a maximum of 453, 33 mg (*Ratlami sev, Payal farsan*).

Table-2 also depicts that, the potassium content of some varieties of *Sevs* showed wide variation among different brands analyzed. The values ranged from as high as 453.33mg (*Ratlami Sev*, 'Payal farsan') to as low as 4.44mg (*Tikhi Jade Sev*, 'Payal farsan')

The only *Sev* that did not show much variation in the potassium content among the different brands was *Usal Sev* as seen in Table-2.

In case of *Ganthiyas*, the potassium content of different varieties of *Ganthiya* ranged from a maximum of 10mg (*Methi Ganthiya*, 'Jagdish farsan') to a minimum of 1.67mg (*Bhavnagri Ganthiya* and *Makhaniya Ganthiya*, 'Payal farsan' and '*Satyavijay farsan*' respectively). Also the potassium content of all varieties of *Ganthiya* were lower than the potassium content of different types of *Sev* samples analysed. The potassium content of *Chakli Ganthiya* and *Makhaniya Ganthiya* was almost same for all the three brands as can be noted from Table-2.

Further *Fulvadi* from '*Jagdish farsan*' (13.42mg) had highest potassium content followed by the same from '*Payal farsan*' (7.78mg) and '*Satyavijay farsan*' (3.89mg).

The *Methi Bhakharvadi* obtained only from '*Jagdish farsan*' did not show much variation in the potassium content when compared to *Sadi* Bhakharvadi* of same brand viz. 6.11 mg Vs 7.77 mg respectively, whereas *Sadi Boondi* showed higher potassium content (Avg. 213.33 mg) compared to *Masala Boondi* (Agv. 13.73mg).

(B) Classification based on the degree of sodium and potassium contents

As revealed from Figures 1a and 1b, 69% of *Bengal gram flour* based snack samples have moderate sodium content and 68% of the same snack samples have low potassium content. Thus most of the analysed snacks have moderate sodium and low potassium content.

However, as generally predicted for snack foods, not a single snack sample analysed had low sodium content whereas only 4% of the snack samples have high potassium content and none had very high potassium content.

Although classified into low, moderate, high and very high, the contribution of each food to the total diet intake of sodium and potassium depends largely on the type and brand of the *farsan* selected. The classification of various *farsans* is presented in Tables-3 & 4.

Several studies have reported that processing results in a remarkable loss of potassium, which makes the processed foods insignificant source of dietary potassium[14,15]. However, though the present investigation established that most of the *Farsans* (Snacks) have low potassium content, there are a few containing high and moderate quanitities of potassium along with moderate quantities of sodium. Hence if selected properly they can even be consumed by individuals requiring modification in sodium and potassium contents in their daily diet.

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*Sadi = common/regular

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Table 1 : Standardisation of Sodium / Potassium

Sr. No.	Working standard (ml)	Concentration (µg/ml)	% Luminosity
1	10	10	20
2	20	20	40
3	30	30	60
4	40	40	80
5	50	50	100

Table 2 : Sodium and Potassium content of *Bengal gram flour* based snacks under different brand names

Snack Food	Brand	Sodium value Mean±SD	Potassium Value Mean±SD
Zini Sev	Payal	520±0	340±32.66
	Jagdish	293.33±37.71	86.67±18.86
	Satyavijay	688.89±15.71	400±144.02
Usal Sev	Payal	513.33±75.42	313.33±67.99
	Jagdish	846.67±41.01	280±32.66
	Satyavij	737±3.67	183.33±150
Tikhi Jade Sev	Payal	250.83±13.66	4.44±0.78
	Jagdish	786.67±9.43	260±16.33
	Satyavijay	316.66±23.57	9.44±0.79
Ratlami Sev	Payal	726.67±47.41	453.33±52.99
	Jagdish	686.67±33.99	260±32.66
	Satyavijay	822.22±20.79	283.33±13.61
Machine Sev	Payal	460±0	273.33±24.94
	Jagdish	238.89±43.74	13.89±1.57
	Satyavijay	288.89±7.86	12.78±1.57
Bhavangari Ganthiya	Payal	122.22±15.71	1.67±0
	Jagdish	199.60±13.13	7.33±1.65
	Satyavijay	288.89±41.57	6.67±2.36
Methi Ganthiya	Payal	283.33±36.00	5.55±2.08
	Jagdish	222.22±34.34	10±2.36
	Satyavijay	266.66±23.57	3.89±0.79
Chakli Ganthiya	Payal	161.11±31.42	4.00±1.52
	Jagdish	166.77±35.96	5.56±3.14
	Satyavijay	238.99±28.33	5.56±2.83
Makhaniya Ganthiya	Payal	133.33±0	2.22±0.78
	Satyavijay	175±8.33	1.67±0
Sadi Boondi	Payal	540±100	340±20
	Jagdish	144.44±28.33	100±0
	Satyavijay	493.33±33.99	200±28.28
Masala Boondi	Payal	116.67±40.82	2.78±0.78
	Jagdish	204.6±29.64	5.08±0.11
	Satyavijay	194.44±28.33	33.33±0
Sadi Bhakharvadi	Payal	205.55±31.43	10±2.72
	Jagdish	250±13.61	7.77±2.08
	Satyavijay	238.89±20.79	7.78±0.78
Methi Bhakharvadi	Jagdish	122.22±31.43	6.11±2.08
Fulvadi	Payal	172.22±15.71	7.78±1.57
	Jagdish	187.87±21.11	13.42±4.59
	Satyavijay	116.66±23.57	3.89±0.79

Table 3 ; Classification of selected *Bengal gram flour* based snacks on the basis of their sodium content

Sodium Content			
Low (<100mg)	**Moderate (100-400 mg/100g)**	**High (400-1000mg/100g)**	**Very High (>1000mg/100g)**
	Zini Sev (Jagdish), Tikhi Jade Sev (Payal, Satyavijay), Machine Sev (Jagdish, Satyavijay), Bhavangari Gathiya, Methi Gathiya, Chakli Gathiya, Makhaniya Gathiya, Plane Boondi (Satyavijay), Masala Boond, Sade Bhakharvadi, Methi Bhakharvadi, Fulvadi.	Zini Sev (Payal, Satyavijay), Usal Sev, Tikhi Jade Sev (Jagdish), Ratlami Sev, Machine Sev (Payal), Plane Boondi (Payal, Jagdish).	

Table 3 : Classification of selected *Bengal gram flour* based snacks on the basis of their potassium content

Potassium Content			
Low (<100mg)	**Moderate (100-400 mg/100g)**	**High (400-1000mg/100g)**	**Very High (>1000mg/100g)**
Zini Sev (Jagdish), Tikhi Jade Sev (Payal, Satyavijay), Machine Sev (Jagdish, Satyavijay), Bhavanagri Gathiya, Methi Gathiya, Chakli Gathiya, Makhaniya Gathiya, Masala Boond, Sade Bhakharvadi, Methi Bhakharvadi, Fulvadi.	Zini Sev (Payal), Usal Sev, Tikhi Jade Sev (Jagdish), Ratlami Sev (Jagdish, Satyavijay), Machine Sev (Payal), Plance Boondi.	Zini Sev (Satyavijay), Ratlami Sev (Payal).	

Figure - 1a. Sodium Content

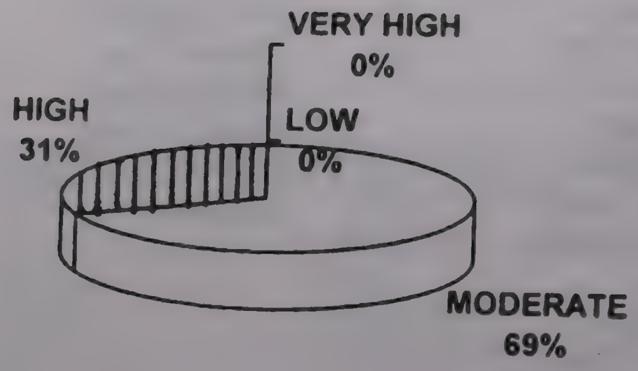
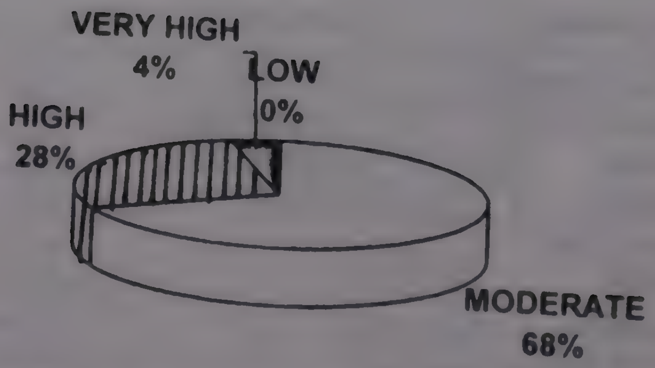


Figure - 1b. Potassium content



An Overview of the classification of selected Bengal Gram Flour based Snacks into Low, Moderate, High And Very High Sodium or Potassium content

CONCENTRATED FERMENTED BUTTERMILK - AN ADDITIVE IN PROCESSED CHEESE SPREAD

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ABSTRACT

Buttermilk, a byproduct of butter industry, is a cheap source of milk solids other than fat. Concentrated fermented buttermilk was used to replace cheese solids at 0, 10, 15, 20 and 25% levels in the preparation of processed cheese alongwith suitable emulsifiers and preservative. The blended cheese spread with 20% buttermilk solids had the highest organoleptic score and overall acceptability.

INTRODUCTION

The manufacturing of processed cheese spread offers several additional advantages over processed cheese such as they are economical, possess the possibilities of satisfying the variable demands of consumers for taste, spreadable at household refrigerator temperature and has natural cheese flavour. It also permits addition of optional flavoring ingredients such as fruits, spices, herbs etc.

Buttermilk, a byproduct of butter industry, appears to be an ideal food source since it is identical in compositional attributes to skim milk (Webb and Whiter, 1970). It is a cheaper source of milk solids other than fat. Hence its judicious utilization in a manner to tender the specific health and nutritive demand of today's life is of utmost importance. Many workers have tried utilization of buttermilk in the manufacture of cheeses including cheddar cheese; El-Sadak et.al. (1969) in baby Edam cheese, Nilokaev and Fremina (1974) in development of low fat cheese variety 'Litovski", Simov and Prodenski (1982) in kachkaval cheese, Ibrahim et al. (1990) in kariesh cheese and Joshi and Thakar (1993) in cheddar cheese. The present study was aimed at exploring the possibilities of using buttermilk solids in the form of concentrated fermented buttermilk (CFBM) into processed cheese spread (PCS)

MATERIALS AND METHODS

Cheese blend : A cheese blend was prepared by mixing shredded young [3 to 3.5 month old, having 37.19% moisture, 30.00 % fat, 28.16% protein, 9.73% salt, 5.21 pH, 32.60 TVFA and 27.66 RI (ripening index)] and ripened [4 to 5month old, having 36.66 % moisture, 30.50 % fat, 28.35% protein, 1.81% salt, 5.26 pH, 44.20 TVFA (ml of NaOH) and 36.26 R1] cheddar cheese in 30:70 proportion. This proportion was arrived at on the basis of preliminary studies. The cheddar cheese used in this experiment, prepared from buffalo milk, was obtained from Kaira District Co-operative Milk Producers' Union Ltd., Anand.

Sweet cream buttermilk : Fresh sweet cream buttermilk [91.42% moisture, 0.45% fat, 3.13% protein and 0.144% lactic acid] obtained immediately after churning of pasteurised cream, was procured from Kaira District Co-operative Milk Producers' Union Ltd., Anand.

Concentrated Buttermilk (CSCBM): Fresh sweet cream buttermilk after forewarming at 85°C for 5 min. was cooled to condensing temperature (55°C), and was concentrated to about 22% total solids in vacuum employing Silkeborg Batch type condensing unit, Denmark. The CSCBM contained 77.37% moisture, 1.70% 11.37% fat, protein and 0.36% lactic acid.

Concentrated Fermented Buttermilk (CFBM) : Concentrated buttermilk was inoculated with active starter cultures of *Str. thermophilus* (strain MD2) and Lb. *bulgaricus* (strain LBW) @ 2% each (Karthikeyan, 1993), and was incubated at 42°C till acidity increased by 0.8 to 0.9 % over the original acidity of concentrated buttermilk.

Emulsifying salts and preservatives : Tri-sodium citrate ($Na_3C_6H_5O_7$, $2H_2O$) and di-sodium phosphate (Na_2HP_4, $2H_2O$) obtained from Samir Tech-Chem Industry, Baroda were used as emulsifying salts in the ratio of 2:1 and added at the rate of 2.5 % (w/w) of the final processed cheese spread as recommended by Dholu et al. (1994). Sorbic acid was added at the rate of 0.01 % (w/w) of the blend as preservative.

Processed cheese spread preparation : Blends of processed cheese spreads (PCS) were prepared by mixing calculated amount of shredded ripened and young cheese. PCS was prepared using 1 kg Cheddar cheese blend at laboratory scale as suggested by Dholu (1989). In the experimental PCS preparation, concentrated fermented buttermilk was incorporated to replace the cheese solids at 0,10,15,20 and 25 percent levels. Emulsifiers were dissolved in calculated amount of water and added after melting of the cheese blend. The final moisture content of PCS was adjusted to 58 to 60 per cent. It was packed hot in plastic cups and rapidly cooled to <10°C (in 4 h) in cold store (1-2°C), followed by refrigerated storage at 7-8°C. The control sample of PCS was prepared as above but it did not contain any buttermilk solids.

Analysis of processed cheese spread : The control and experimental processed cheese spreads were analysed for moisture (Laboratory Manual, 1959), fat (Manual for Dairy Chemistry, 1972) and soluble nitrogen (Kosikowski, 1970). Some other physico-chemical attributes such as TVFA (Kosikowski and Dahlberg, 1946), protein (Jayaraman, 1981), consistency by penetration using Universal Cone Penetrometer (Hartman, 1976) Meltability (Olson and Price, 1958) and fat leakage (Deman and Wood, 1959) were also analysed.

Sensory evaluation of the products was carried out using 9-point hedonic scale, by a panel of judges, selected from the faculty, who were familiar with the quality of the processed cheese spread. Data were analysed using a completely randomised design (Steel and Torrie, 1980).

RESULTS AND DISCUSSION

Composition : The data presented in Tables-1 and 2 show the influence of incorporation of CFBM on compositional quality of CPS. Moisture content of all PCS samples was well within the limit of BIS regulations and all samples were statistically at par ($P \leq 0.05$). Fat and FDM contents of the experimental samples showed decreasing trend and the reduction was significant at each level of successive incorporation of CFBM solids. The lowest value for fat, at the maximum level of CFBM solids' incorporation (L4) was 16.50 percent and it was within the limit of BIS specifications. Thus there would not be any need to incorporate fat from outside in any form, to comply with the BIS specification. Abdel-Baky et al. (1987) and El-Neshawy et al. (1987) reported similar values for FDM content; however, Shehata et al. (1982 a) reported lower values compared with the present study. Protein content of the experimental samples increased significantly from 18.65 (L0, control) to 19.96 (L4, 25% of CFBM). The increase in the protein content was significant at more than 10 per cent of incorporation level. The salt content decreased significantly from 1.35(%) for L0 to 1.16 % for L4, the maximum level of incorporation of CFBM. The decrease was obvious as external addition of salt was not done. Similar or even lower values for salt content have been reported by El-Neshawy et al. (1987) and Gouda and El-Shibiny (1987).

The data presented in Table-2 reveal the influence of incorporation of CFBM on acidity (%la), which increased (from 1.04 for L0 to 1.41% la for L4) on successive incorporation level and the increase was significant at each level. This effect was observed because of relatively higher percent of lactic acid in CFBM (1.42%la) compared to the cheese (1.07% la) in the blend. The mean values for pH of the PCS samples ranged from 5.70 (L4) to 5.99 (L0). Addition of CFBM resulted in the decrease of the pH of the PCS samples; however, the decrease when compared with control sample, was statistically significant beyond L2 level of incorporation. Similar values for pH was reported by Abdel-Baky et al. (1987) and Shehata et al. (1982 b); however, Megdoub et al. (1984) and Dholu (1989) reported lower values for this attribute. The soluble nitrogen content decreased non-significantly upon incorporation of CFBM solids. The minor non-significant increase observed may be because of much lower soluble nitrogen content in CFBM (0.37%) compared to cheese blend (1.60%).

The TVFA content was significantly affected by incorporation of CFBM solids. The control (L0) sample had the highest (42.75) value and the lowest value (29.75) was for maximum incorporation level. The decrease was significant at each level of incorporation of CFBM solids. The significant reduction observed may be ascribed to the progressive reduction in the quantity of cheese, the major component contributing to the TVFA content in PCS blend. Similar reports have been reported by Abdel-Baky et al. (1987); however, higher values were reported by El-Neshawy et al. (1987).

Rheological attributes : The data presented in Table-3 depict the influence of incorporation of CFBM solids on penetration value (mm), meltability (mm) and fat leakage value (%). Penetration value increased significantly in samples L1, L2 and L3; however sample L4 remained at par with L0 (control). Samples L1, L2 and L3 were statistically at par. Thus incorporation of CFBM solids in the blend at first instance increased penetration value and thereby spreadability. The firmness of PCS samples is largely governed by pH (Meyer, 1973 and Shimp, 1985). In addition to this, other factors such as moisture / SNF ratio and level of intact casein play important role (Arnott et al. 1957 and Olson et al. 1958). Meltability is a property, which is governed by age, type, processing and other factors (Vakaleris et al. 1962). Meltability of the experimental PCS samples decreased significantly and the sample L0 had the highest (136 mm) value for meltability compared to the experimental samples. Sample L4 had the lowest (66 mm) value and was significantly lower than L0, L1 and L2 samples. The significant decrease was observed only at difference of 5 or more percent of incorporation level of CFBM solids. Fat leakage property was improved, however the successive decrease observed in fat leakage was non-significant.

Yield : Successive incorporation of CFBM solids resulted in significant increase in yield (Table-3). The average yield values ranged from 1.59 (L0) to 2.07 kg PCS per kg of cheese and were well within the expected yield limits of PCS. Significantly higher yield was obtained for L4 samples as compared to all other experimental samples. This could be ascribed to the total solids supplied by CFBM in the cheese blend.

Sensory properties : Incorporation of CFBM solids to experimental PCS samples resulted in significant improvement in flavour (Table-4). Sample L3 had the highest score and was significantly higher than L0 (control) and L1 samples; however, L2, L3 and L4 were statistically alike. Thus L0 differed significantly from L3 and remained at par with other samples. In respect of spreadability attribute, though all the samples were statistically at par, a specific trend was evident. On successive incorporation of CFBM solids up to L3 level, product became softer and there after became firmer and received little less score. Harwalker and Kalab (1986) and Karthikeyan (1993) had reported similar effect of water binding capacity of buttermilk protein in different products containing buttermilk solids. Incorporation of CFBM solids to PCS blend resulted in higher colour and plastic appearance with the glossy look on the surface compared to L0 (control) sample. Thus, experimental PCS samples received non-significant higher score compared to control (L0) sample. Sample L3 received highest score (7.78) for overall acceptability and was preferred compared to other samples.

Conclusion : Incorporation of Concentrated Fermented Buttermilk (CFBM) solids at various levels in cheese blend had no significant influence on soluble nitrogen content, fat leakage, spreadability, colour and appearance and overall acceptability of Processed Cheese Spreads (PCS). It significantly reduced fat, Fat on Dry Matter (FDM), salt, pH, Total Volatile Fatty Acids (TVFA) and meltability of PCS, whereas protein, acidity and yield of experimental PCS samples increased significantly. The penetration value and flavour of experimental PCS samples were also significantly and favourably altered but incorporation up to 20% of solids level increased the values. Buttermilk solids @ 20% of the cheese solids can be incorporated in the PCS blend to obtain better quality of processed cheese spread compared to control and other PCS samples.

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Table 1 Effect of incorporation of concentrated fermented buttermilk solids on compositional attributes of processed cheese spread (PCS)

Level of Incorporation (%)	Compositional attributes (%)				
	Moisture	Fat	FDM	Protein	Salt
0(L_0)	58.70	19.06	46.15	18.65	1.35
10(L_1)	58.84	18.19	44.28	19.17	1.29
15(L_2)	59.10	17.63	43.09	19.45	1.24
20(L_3)	59.10	17.06	41.73	19.73	1.21
25(L_4)	59.26	16.50	40.50	19.96	1.16
CD ($P<0.05$)	ns	0.561	1.44	0.27	0.43

Table - 2. Effect of incorporation of concentrated fermented buttermilk solids on physico-chemical attributes of PCS.

Level of Incorporation (%)	Phycico-chemical attributes			
	Acidity (% lactic acid)	pH	Soluble Nitrogen (%)	TVFA (ml of 0.1 N NaOH per 100g of cheese)
0(L_0)	1.04	5.99	1.53	42.75
10(L_1)	1.28	5.87	1.45	38.00
15(L_2)	1.32	5.81	1.46	34.75
20(L_3)	1.37	5.77	1.46	32.00
25(L_4)	1.14	5.70	1.47	29.75
CD ($P<0.05$)	0.039	0.148	ns	2.149

Table-3. Effect of incorporation of concentrated fermented buttermilk solids on rheological attributes and yield of PCS.

Level of Incorporation (%)	Phycico-chemical attributes			
	Penetration Value (mm)	Meltability (mm)	Fat leakage (%)	Yield kg PCS/ kg cheese
0(L_0)	25.20	136.00	2.04	1.59
10(L_1)	27.98	107.00	1.98	1.79
15(L_2)	27.55	92.50	1.90	1.87
20(L_3)	27.08	80.75	1.80	1.98
25(L_4)	26.03	66.00	1.72	2.07
CD ($P<0.05$)	1.64	25.27	ns	0.027

Table-4. Effect of incorporation of concentrated fermented buttermilk solids on sensory attributes of PCS.

Level of Incorporation (%)	Sensory Score			
	Flavour	Spreadability	Colour and appearance	Over all acceptability
0(L_0)	7.32	7.08	7.48	7.20
10(L_1)	7.08	7.10	7.60	7.20
15(L_2)	7.50	7.60	7.60	7.58
20(L_3)	7.78	7.73	7.65	7.78
25(L_4)	7.50	7.63	7.65	7.58
CD ($P<0.05$)	0.42	ns	ns	ns

QUALITY EVALUATION OF INSTANT DEHYDRATED MANGO *CHUTNEY* DURING STORAGE IN DIFFRENT CONTAINERS

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ABSTRACT

An inexpensive recipe has been standardized for preparing instant mango *chutney* mix from *Neelum* and *Desi* varieties of mango. Among the various pre-treatments tried, dip in 5% salt+1.5% KMS for 30 minutes prior to drying of raw mango slices for powder preparation was found to be best. Instant *chutney* mix was prepared by mixing mango powder along with spices/ condiments (in powder form), sugar, salt etc. in different proportions. The optimum ERH for storing this product was 56.0% having 4.5% equilibrium moisture content (EMC) for both the varieties. In general, during six months of storage at ambient temperature (28-34°C), overall quality of *chutney* was found better in aluminium pouches followed by glass bottles, plastic bottles and sachets irrespective of varieties and treatments used.

INTRODUCTION

In India mango occupies an area of 1.3 million hectares and is in the top position with an annual production of about 10.63 million tonnes (NHB, 1997). It has also got a great potential for making processed products. Mango being assumed still as the king of fruits, is well known for its diversified uses. Both young and unripe fruits are utilised for culinary purposes as well as for preparing pickles, *chutney* and *amchur*. Mango products occupy first place in the fruit processing industry in India. Among 15 different processed products, mango chutney ranks fifth in position and from the export point of view, mango *chutney* stands third in position (4.5 thousand tonnes valued at Rs. 543.23 lakhs in the year 1996-97) (APEDA, 1997). Among processed products, pickles and chutneys are some of the important items used all over the world and they are also are important part of Indian menu being good appetizers and palatable. Study was made to develop a newer category of product. An integrated approach was made to standardize the procedures for the preparation of instant mango chutney mix from raw mango slices and study its nutritional quality and storage behaviour.

MATERIALS AND METHODS

Procurement of raw material : Raw fruits of mango cv. *Neelum* were procured from Union Territory of Pondicherry and *Desi* variety from the local market, New Delhi. Other raw materials such as spices, condiments, sugar etc. were also purchased from the local market.

Preparation of Raw Mango slices: After procurement, the fruits were washed, peeled and cut into shreds (6.5 x 1cm) lengthwise.

Colour and size of fruit : The colour of fruit was observed visually. The fruit size of different types of mangoes was determined with the help of vernier caliper by measuring the length and diameter of ten fruits selected at random.

Fruit weight : The weight of ten raw mango fruits selected at random was taken on a physical balance individually and expressed as average fruit weight (g/fruit).

Specific gravity : Mango fruits selected at random were dropped into a 2 litre measuring cylinder containing water upto 1 L mark after taking fruits weight in air and the displacement of water in ml was recorded. The specific gravity of each fruit and variety was calculated as weight of the fruit in air (g) divided by the volume of water displaced by them (Gustafson, 1926).

Peel percentage : The fruits were peeled manually using a hand peeler and peel percentage was calculated.

Yield of slices : The peeled fruits were cut into uniform slices length wise and slice yield was calculated in percentage.

Stone percentage : After removing the peel and flesh, the stones were weighed and expressed in terms of percentage.

Effect of different pretreatments on the quality of Dried Slices Powder : The mango fruits of *Neelum* and *Desi* varieties were washed and cut into slices of uniform size. These slices were given the following pretreatments.

T_1- Fresh slices blanched for 3 minutes in boiling water.

T_2- Blanched slices soaked for 30 minutes in 2% salt solution +0.2% KMS solution (1:2)

T_3 - Blanched slices soaked for 30 minutes in 5% salt solution +1.5% KMS solution (1:2)

T_4 - Blanched slices soaked for 30 minutes in 10% salt solution +0.2% potassium metabisulphite (KMS) solution (1:2)

T_5 - Blanched slices soaked over night to ensure complete immersion in 70°Brick sugar syrup (equal quantity)

Drying : After dipping the slices for 30 minutes in the above solutions, the excess amount of solution was drained on a stainless steel sieve of 30 mesh and slices were loaded @1.5 kg per aluminium tray of 3.5 ft x 1.5 ft and kept in a cabinet drier. The drying was carried out at a temperature of 60°C ± 5°C. The cross flow cabinet drier (Kilburn make, model 0248) was used for dehydration purpose. Air flow of the drier was 1.20- 1.80 m/second. The slices were turned over after every hour for uniform drying upto a moisture level of 6 per cent.

Drying rate : Drying rate was computed by reçording the loss of weight of the slices. The trays were weighed at hourly interval and the drying rate was expressed as the residual water to the dry matter.

Drying ratio : Drying ratio was calculated as net dry weight obtained from fresh weight of the material (Ranganna, 1997).

Rehydration ratio : To find out optimum volume of water for maximum reconstitution, 20g of dried instant mango chutney from each recipe was weighed and mixed with water in the ratio of 1:1.5, 1;2 and 1:3. To find out the soaking time, the weighed quantity of the product was taken in small beaker and mixed with predetermined volume of water and kept for 10-40 minutes, after which the water was drained off and the product was blotted with filter paper and weighed (Bhatia and Amin, 1962).

To find out the effect of water temperature on the reconstitution ratio, the instant mango chutney samples were soaked in water having the temperature of 30°C, 50°C, 75°C, 100°C for 30 minutes. The water was drained off and the chutney samples were blotted with filter paper to remove excess surface water and then weighed.

The volume of water, water temperature, and the period of soaking which gave maximum reconstitution was taken as standard for further studies.

Preparation of Mango Powder : The pretreated and dehydrated raw mango slices were powdered with the help of grinding machine (Thomas Wiley Laboratory Mill) and it was kept in air tight containers for the preparation of mango instant chutney.

Chemical analysis of Raw Mango slices : The moisture content was determined by drying a known weight of the homogenous sample at 50±5°C to a constant weight and expressed as per cent (Ranganna, 1997).

The total soluble solids (TSS) of fruits were determined by crushing small portion of fruits in pestle and mortar and measuring with a hand refractometer. The readings were corrected for temperature variations and the results were expressed as degree Brix (ºB) at 20ºC.

Acidity, pH, ascorbic acid, sugars, total ash, SO_2 and NEB were estimated as per the methods of Ranganna (1997).

Analysis of Mango Powder : The powder prepared from the slices after different pre-treatments was analysed for moisture, pH, acidity, sugars (total and reducing), ascorbic acid, total ash according to the procedures mentioned earlier for fresh slices. Before carrying out analysis, the powder was soaked for 20-30 minutes in ordinary distilled water. Other analysis were done as per standard methods.

Standardisation of Recipe : The recipe for instant chutney was standardised by mixing mango powder with different proportions of spices, condiments and other ingredients mentioned above. Different recipes of instant chutney powder (Table 4) were diluted in the ratio of 1:2 for 15 minutes before serving. The best two recipes were selected on the basis of sensory evaluation studies.

The prepared dehydrated instant mango chutney (200g) from both the recipes was stored at ambient temperature in glass and plastic bottles, aluminium foil pack and sachets.

Organoleptic evaluation : The sensory quality evaluation of instant mango chutney was done after rehydration by a panel of seven judges as mentioned above using a 9- point Hedonic scale (Amerine et al. 1965). The overall rating was calculated by averaging the scores. Samples which obtained a score of 5.5 and above were considered acceptable.

Equilibrium Relative Humidity (ERH) studies : For instant mango chutney, the equilibrium relative humidity was determined by Wink (1946) weight equilibrium method. Two gm of sample was weighed accurately in aluminium dishes and exposed to different relative humidities ranging from 10 to 100 per cent in desiccators containing saturated salt solutions and desiccators kept at 25ºC (Ranganna, 1997). The gain or loss in weight of the product under each humidity was determined at two days interval.

Physico-chemical composition of Raw Mangoes

Physical parameters : A wide variation in the physical characteristics of *Neelum* and *Desi* varieties of mango was observed (Table 1) which might be due to the differences in their genetic make-up and environmental factors.

Chemical parameters : Variation in chemical composition was observed between *Neelum* and *Desi* varieties (Table 3). Moisture content was higher by 2 per cent in *Neelum* as compared to *Desi* Variety. *Desi* variety of mango was more acidic and contained higher amount of ascorbic acid as compared to *Neelum*.

Drying of Mango slices for powder preparation

Drying rate : Out of five different treatment treatments tried to dehydrate mango slices, best two treatments viz. T_2 (2% salt+0.2% KMS) and T_3 (5% salt+1.5% KMS) were selected and compared with T_1(control) for drying rate, drying ratio and rehydration ratio (Table 3). The drying rate was found to be faster in T_1 as compared to T_2 and T_3 in both the varieties. This might be due to low initial moisture content of mango slices of T_1 which were not soaked in a sulphited solution like other treatments (T_2 and T_3) . It took 14 hours of time in T_1 while in T_2 and T_3 it took 16 hours for drying the mango slices.

Drying ratio : Drying ratio was found to be higher in T_3 treatment (5% salt + 1.5% KMS) in both the varieties. This might be because of higher salt concentration (5%) in raw mango slices as compared to treatment T_2 (2% salt) and T_1 (control).

Rehydration ratio : The rehydration ratio of mango powder was found to be higher for T_3 treatment (5% salt + 1.5% KMS) as compared to other treatments. However, rehydration ratio was better in hot water (50ºC) as compared to ordinary water (26ºC) in both the varieties. This might be due to quick softening of powder which led to better absorption of water resulting in higher rehydration ratio. The rehydration ratio was 1:1.23 at 26ºC and 1:1.24 at 50ºC for both the varieties (Table-2a).

Chemical analysis of Raw Mango powder and Instant Chutney

There was considerable variation in chemical composition of raw mango powder samples prepared by different pretreatments. Among the various pretreatments tried for drying of mango slices for powder preparation, treatment T_3 (5% salt+1.5% KMS) was found to be best followed by treatment T_2 (2%salt + 0.2% KMS) and treatment T_1 (control), with regard to colour (NEB value), retention of ascorbic acid and SO_2 both in *Neelum* and *Desi* varieties. Other quality parameters were higher in control samples (T_1) of both the varieties. Chemical composition of both raw mango powder and instant mango chutney for best treatment (T_3) is shown in Table-4.

Standardisation of recipe for Instant Mango Chutney

Organoleptic evaluation : The organoleptic evaluation showed that treatments influenced the sensory quality of mango powder and instant mango chutney (Tables - 6a & b). The instant mango chutney prepared from treated mango powder samples (5% salt+1.5% KMS) obtained the overall highest score (7.47) when it was rehydrated in hot water (75°C) as compared to ordinary cold water (26°C). This might be due to the presence of sulphur dioxide which had protective effect on retention of quality parameters during drying.

Among the 3 recipes tried for the preparation of instant mango chutney, Recipe-2 was adjudged best (Table-6a) after rehydrating it in cold and hot water (Table-6b). Among different treatments, T_1 was found to be best with respect to overall average score (7.53) followed by T_3 (7.27) and T_2 (7.03).

Packaging and storage of Instant Mango Chutney

The instant chutney prepared from different treatments was packed in different packaging materials and stored for 6 months at ambinet temperature (28°C-34°C). The nutritional and microbial qualities of the instant chutney were influenced by different treatments and packaging material during storage.

During storage of instant mango chutney, significant differences were observed for interaction effect of treatments and packaging materials for all the quality parameters in both the varieties.

The loss of ascorbic acid, SO_2 and non-enzymatic browning gradually increased with the advancement of storage period. NEB was more in instant mango chutney prepared from control sample than the treated samples. The loss in ascorbic acid and SO_2 was minimum in treated samples than control ones. With respect to packaging materials, aluminium pouches and glass bottles performed better than others. In general, overall quality was found to be better in aluminium pouches followed by glass bottles, plastic bottles and sachets, irrespective of the varieties and treatments used.

Instant mango chutney could be stored safely and upto an acceptable period of 6 months at ambient temperature (28-34°C) irrespective of containers used for both the varieties.

From the above, it is quite clear that by selecting appropriate treatments and packaging materials, some of the defects in conventional chutneys such as browning, discolouration, viscosity etc. can be overcome. Development of inexpensive dehydrated instant mango chutney will go a long way in expanding the chutney industry in India.

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Table 1 : Physical parameters of raw mangoes

Parameters	Variety	
	Neelum	*Desi*
Colour	Light Green	Dark Green
Average weight (g)	166±0.52	200±0.50
Average size		
Length (cm)	9.10±0.2	8.46±0.3
Diameter (cm)	6.20±0.12	6.58±0.15
Peel (%)	13.50	13.00
Slice (%)	68.20	62.12
Stone (%)	18.30±0.15	24.90±0.12
Specific gravity	0.90±0.02	0.80±0.04

Table 2a : Rehydration ratio of mango powder

	Mango Powder			
	Neelum		*Desi*	
Treatments	26°C	50°C	26°C	50°C
T_1	1:1.22	1:1.23	1:1.22	1:1.23
T_2	1:1.22	1:1.23	1:1.22	1:1.23
T_3	1:1.23	1:1.24	1:1.23	1:1.24

Rehydration time = 5 minutes.

T_1 = Control

T_2 = 2% Salt+0.2% KMS solution (dipping for 30 minutes)

T_3 = 5% Salt + 1.5% KMS solution (dipping for 30 minutes)

Table 2b : Rehydration ratio of instant mango chutney

	Instant mango chutney mix			
	Neelum		*Desi*	
Treatments	26°C	50°C	26°C	50°C
T_1	1:1.43	1:1.54	1:1.43	1:1.54
T_2	1:1.43	1:1.55	1:1.43	1:1.55
T_3	1:1.44	1:1.56	1:1.44	1:1.56

Rehydration time = 15 minutes.

T_1 = Control

T_2 = 2% Salt+0.2% KMS solution (dipping for 30 minutes)

T_3 = 5% Salt + 1.5% KMS solution (dipping for 30 minutes)

Table 3 : Chemical analysis of raw mangoes

Parameters	Variety	
	Neelum	*Desi*
Moisture (%)	82.00	80.00
Total soluble solids (^{0}B)	10.00	12.00
Acidity (% citric acid)	1.97	2.84
pH	2.87	2.68
Ascorbic acid (mg/100g)	94.20	150.00
Sugars (%)		
Reducing	3.40	4.02
Total	4.83.	5.30
Total ash (%)	0.51	0.54

Table 4: Chemical analysis of raw mango powder* and instant mango chutney*

Parameters	Variety			
	Neelum		*Desi*	
	Powder	Chutney	Powder	Chutney
Moisture (%)	5.70	4.50	5.30	4.75
TSS (^{0}B)	20.00	69.0	20.00	55.0
Acidity (% citric acid)	8.41	1.60	13.46	1.64
pH	2.12	3.89	1.98	3.91
Ascorbic acid (mg/100g)	52.00	59.0	58.57	63.5
Sugars (%)				
Reducing	12.70	12.35	12.20	8.08
Total	14.20	63.69	13.60	54.43
Total ash (%)	4.10	4.17	3.90	4.26
SO_2 (ppm)	1473.00	1282.00	1490.00	1288.00
NEB (O.D)	0.110	0.111	0.118	0.119
Drying ratio of slices	1.42:1	-	1.61:1	-

* Treatment (T_3)= 5% Salt+ 1.5% KMS solution (Dipped for 30 minutes)

Table 5 : Different recipes for the preparaton of instant mango chutney

Ingredients	Quantity (g)		
	R_1	R_2	R_3
Mango powder	100.0	100.0	100.0
Sugar	100.0	100.0	75.0
Salt	40.0	3.0	5.0
Citric acid	12.0	-	5.6
Onion	56.0	10.0	-
Garlic	20.0	0.2	-
Ginger	8.0	-	-
Black Pepper	8.0	-	-
Cumin	16.0	0.25	2.5
Cinnamon	8.0	0.5	0.5
Red chillies	4.0	3.0	0.5
Clove	4.0	-	-
Cardamom	12.0	0.25	0.25
Mint	4.0	-	-
Nutmeg	-	0.5	0.5

Table 6a : Overall average score for organoleptic evaluation of instant mango chutney prepared from different recipes (after rehydration in water 1:2)

Treatments	Recipe-I	Recipe -II	Recipe-II
T_1 (Control)	6.83	7.53	7.10
T_2 (2% salt+ 0.2% KMS)	7.20	7.03	6.87
T_3 (5% salt+ 1.5% KMS)	7.12	7.27	6.83
Average score	7.05	7.27	6.93

Table 6b : Organoleptic evaluation of Recipe -2 of instant mango chutney (after rehydration in water 1:2)

Treatments	Colour	Flavour	Texture	Overall acceptability
T_1	7.50	7.50	7.59	7.53
T_2	7.01	7.18	6.90	7.03
T_3	7.00	7.17	7.64	7.27

Table 7. Relationship between equilibrium moisture and time for equilibration at different relative humidities in instant mango chutney from *Neelum* and *Desi* Variety (25°C)

	Neelum 5% salt + 1.5% KMS (T_3)			***Desi*** 5% salt +1.5% KMS (T_1)		
Relative humidity %	EMC (%)	No. of days to reach equlibrium	Remarks	EMC (%)	No. of days to reach equilibrium	Remarks
10	1.80	24	Normal colour and free flowing	1.80	24	Normal colour and free flowing
20	2.66	23	-do-	2.68	23	-do-
30	2.80	23	-do-	2.81	23	-do-
40	3.75	20	-do-	3.75	20	-do-
50	4.32	18	-do-	4.30	18	-do-
60	4.72	18	Slight colour change	4.73	18	Slight colour change
70	8.90	12	Caking and browning	8.91	12	Caking and browning
80	15.20	9	Spots of mould growth	15.10	9	Spots of mould growth
90	34.00	8	Powder moisty, mould growth	33.80	8	Powder moisty, mould growth
100	68.50	6	Powder moisty, more mould growth	68.0	6	Powder moisty, more mould growth.

Initital moisture content (%) : *Neelum* = 4.50, *Desi* = 4.75.

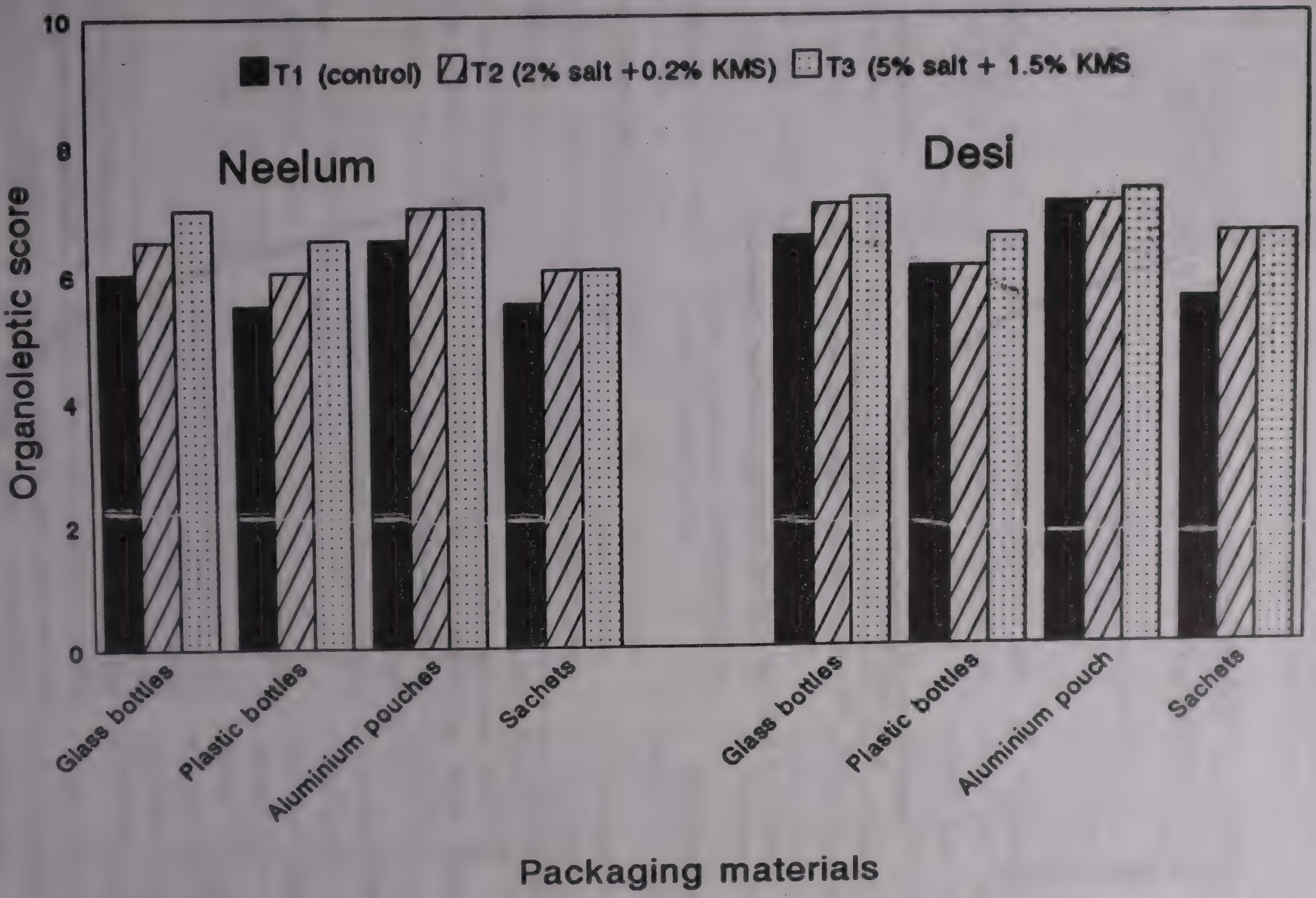
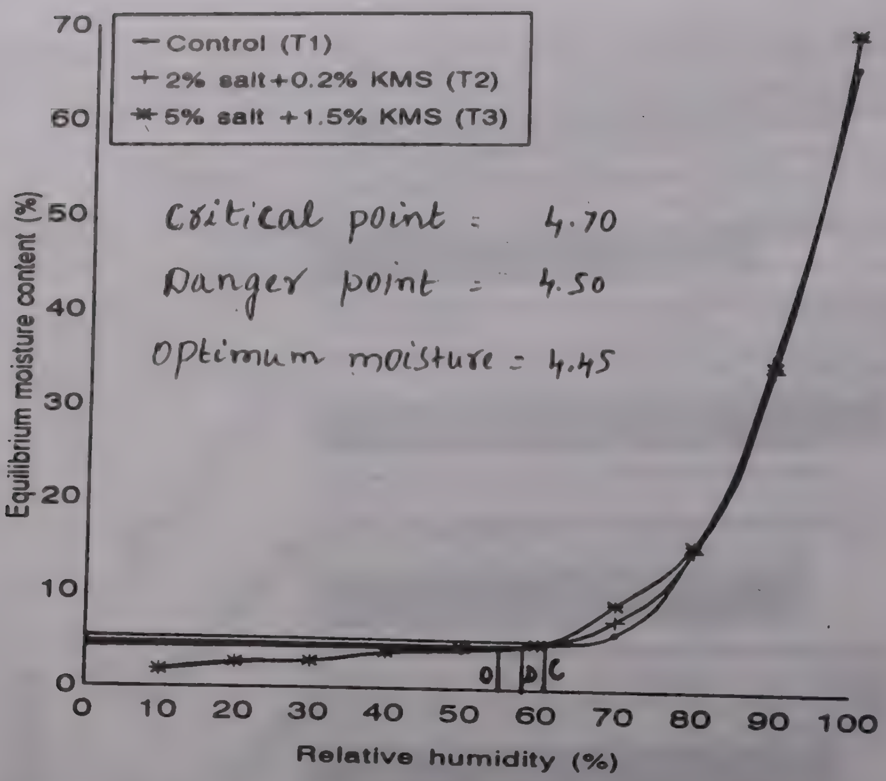
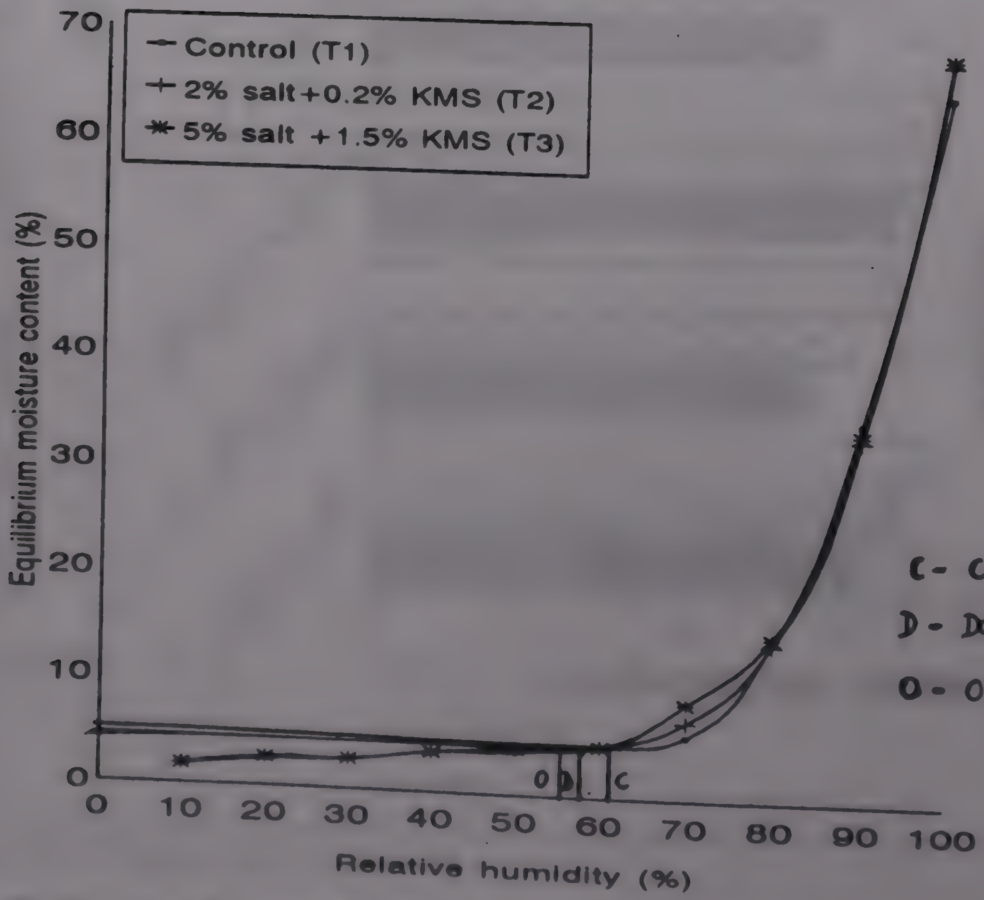


Fig. I Overall organoleptic evaluation of instant chutney after 6 months of storage



Critical point : 4.70
Danger point : 4.50
Optimum moisture : 4.45

Pattern of ERH in instant mango chutney (Neelum)



C - Critical point (4.73)
D - Danger point (4.50)
O - Optimum moisture (4.40)

Fig. 2 Pattern of ERH in instant mango chutney (DESI)

GENERAL ARTICLES

POTENTIAL OF FOOD PROCESSING INDUSTRY IN INDIA VIS-À-VIS GLOBAL PERSPECTIVE*

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Food processing industry is going to be the leading industrial sector in the world overtaking petroleum, automobiles and information technology from their existing lead positions.

A glimpse of the world food processing scenario:

i. Food processing is the largest industrial sector in USA - Shipments valued at

USD 400 billion (almost Rs 20 lakh crores).

ii. In Europe about 67% of produce is processed, which is valued at US$300 billion (Rs. 15 lakh crores)

iii. In Thailand food processing industry accounts for 60%a of the country's economy- significantly 90% is in small scale.

iv. China is emerging fast as one of the world's largest processors of all kinds of food products, covering Fruits, Vegetables, mushrooms etc.

v. Brazilian economy has it's major share contributed by fruit processing industry, predominantly oranges.

vi. In most of the countries with emerging economies 60-80% of the horticulture produce is processed for value addition.

The food processing companies in these countries have shown phenomenal growth e.g.

A. The average size of top 20 food product companies in various countries is:

USA	:	Rs. 42,500 Crores
UK	:	Rs. 14,500 Crores
Malaysia	:	Rzs. 2,100 Crores
India	:	Rs. 513 Crores

(Refer Annexure 1)

B. Comparison of individual companies, including MNC's in India against the one's abroad sound somewhat disappointing e.g.

Combined turn-over of top 300 cos. In India is less than that of one Single Food Processing Co. like Philip Morris of USA having a turn-over of over Rs. 180,000 crores. Against turn-over of over Rs. 100,000 crores of Cargill, Unilever, Nestle etc., our MNC's have turn -over of Rs 250 to 2000 crores.(Refer Annexure 2)

C. Present Scenario of food industry in India is a sort of paradox

i. Problems of plenty on the side - which has driven farmers to commit suicide due to negative return (Kolar - tomato scene).

ii. Problems of severe scarcity on the other side resulting in starvation deaths (Orissa).

D. National Priorities are:

i. Ensuring our domestic food security by way of:

a. Prevention of losses
b. Processing to preserve
c. Development of distribution
d. Process to export.

ii. The success on export is guaranteed as:

Indian horticultural produce is exotic /matchless in quality for flavour / taste and relatively cheaper. The varieties preferred in the international market, if not grown at present, can however be developed and grown in abundance without any problems whatsoever.

But the external appearance being impaired for lack of suitable technologies at present again suggest processing of the same for export.

iii. The Exports are necessary to:

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* Paper presented at the National Seminar on "Globalisation - Impact on Food Processing Industry" held on 19th Oct. 2001 at New Delhi.

a. Assist farmers
b. Promote trade
c. Earn foreign exchange
d. Generate employment for rural youth

Thus processing food products to offer products of unbeatable quality to the global market is a must in the best interests of countrywide socioeconomic development.

E- Popularity of Indian food products:

Indian food products are getting extremely popular as:

1. Indian food business in Britain at present is estimated at US$ 3.75 BN (Rs. 16,300 crores) a year.

2. The number of Indian restaurants in London today are 3800 and in Britain about 9000 which are more than the number of total restaurants in Mumbai and Delhi together.

3. The readymade Indian meals sell to the extent of US$1.69 BN (Rs. 7,350 crores) a year at super markets in U.K.

4. M/s Noon PLC producing typical ethnic Indian food products in London has turnover of over US$ 42 million (Rs. 183 crores)

5. Indian cuisine is one of the hottest things going in Tokyo too, which has over 250 Indian restaurants.

6. Indian curry has pushed turn-over of Indian Food Products to over US$3.00 Billion (Rs. 14,500 crores approx.) a year in U.K. alone.

7. Two makers of Indian Processed Food have got into Sunday Times list of 1000 richest in Britain.

8. In the last two years, one Indian restaurant has opened almost everyday on the average in France.

E. India has the naturally available strengths to be effective world leader in processed food products as:

1. The country is one of the largest producers of fruits, vegetables, milk, meat and poultry etc.

2. Country is endowed with excellent weather conditions to attain much higher levels of productivity with diversity.

3. It has the largest population of skilled manpower and strong R&D facilities.

4. Food being the most essential requisite to sustain life, it's demand shall be ever increasing.

5. To sustain the agro-based economy of the country and to prevent losses of horticulture produce, their processing to preserve is unavoidable.

6. Enormous potential is available as the existing processing facilities cover only 2% of produce.

7. Consumption of value added food is estimated to touch Rs. 2,25, 000/- crores, i.e. larger than any other manufacturing industry by 2007.

G.The fundamentals of success for the ambitios ventures in food processing industry are :

i. The will to perform and succeed.

ii. The clarity of direction

iii. The financial resourcefulness

To substantiate these criteria, some examples at International & National levels are the following projects which were initiated by individual first generation entrepreneurs in a small way and have achieved an incredible success over the years:

i. International

McDonalds :
-25,000 outlets in 155 countries
-40 million customers per day
-2000 MT, FFF sale per day (Require 15 lacs MT of potatoes for processing p.a)

Dominos Pizza :
-Sell 1 million pizzas per day
-700 franchises, 6400 stores, 1,30,000 work force
-Tomato required for ketchup and topping is 1,25,000 MT annually.

Campbell Soups :
- Sell 2.50 billion bowls and 440 million cans per annum.

Heinz :
- Turn -over of US$ 9.23 billion (Rs. 4400 crores) Most popular products: Tomato ketchup.

Tropicana (now Pepsi Co's subsidiary):
-Processing capacity - 7,000 MT of Oranges to produce 6.80 million litres of juice per day.
- Transportation
*Company owned ship S.S. Tropicana, with Refrigerated tank carries 6 million litres every week and.

·1.6 km. long train carries 4 million litres juice every 2 days from Florida to New York.

ii. National

NDDB :
Milk & Milk Prodcuts; Fruit & Vegetable Products; Edible Oils etc.etc.

Agro Dutch Foods Ltd :
Mushroom Farming & Processing

Dynamix Dairy :
Milk & Milk Products.

Venkateshwara Hatcheries :
Poultry Farming & Processing

Alkabir, Allana Sons & Hind Industries : Meat Processing

Rajan Pillai's :
Processed & Packed Nuts (Nut king)

Satnam Overseas / LT Overseas :
Basmati Processors & Exporters

Haldiram :
Traditional Indian Snacks.

India is a market that continues to woo MNC's. Even Phillip Morris is contemplating to make entry in Indian market with an equity of Rs. 70 crores to introduce pasta, purees, processed meat, cheese, desserts etc.

The awareness at the Govt. Level of the enormous potential of food processing industry in India has already been realized. There is a concerted endeavor to promote food processing industry in India. An example to backup the private corporate sector for promoting food processing industry in a big way is the effort to develop food parks and agri export zones all over the country. A case in point has been the recent workshop on potato export zone held at Agra under the aegis of APEDA. The highlights of the same are given in Annexure 3. Similar agri-export zone for various other fruits in their respective agri regions of availability are being promoted likewise (ref. Annexure 4).

Lastly it is now for the private corporate sector, which has unfortunately shied away until now from food processing venture, to come forward and invest in this industry in a big way with complete forward and backward linkages and reap the assured bountiful harvest, much more in volume and returns than the common areas of their interest in large industrial ventures.

ANNEXURE -3 PROPOSED AGRI-EXPORT ZONE FOR POTATOES IN AGRA

(Ref. : The workshop on "Potato Export Zone at Agra" organised by APEDA on 01-10-2001).
Participants :- SENIOR CENTRAL / STATE OFFICIALS TO ENDORSE ACTION PLAN.

- Additional Chief Secretary & Agriculture Production Commissioner
- Chairman, APEDA
- Secretary (DOH),
- Director (CPRI)
- Director, Horticulture, Govt, of U.P
- M.D., National Seed Corporation
- Additional Industrial Advisor, MFPI

Activities involved and Processed Financial Resources (in Rs. Lakhs)

PARTICULARS	TOTAL Cost	Govt. Assistance Amount	Pvt. Sector Investment	Turn Over	Operating Profit
FIRST STAGE	820.00	456.50	363.50	8500.00	1821.33
- Feasibility study for post harvest infrastructure - Production and enhancement program - Human resource/Tech. Development - Infrastructure/ Development. - Processing units/ Q.C. System - Export promotion					
SECOND STAGE	9744.00	1704.50	8039.50	10775.00	1804.17
- Feasibility study for processing unit - Human resource/Tech. Devpt. - Infrastructure Devpt. - Processing units/ Q.C. System - Export promotion					
TOTAL *(1st & 2nd Stage)*	10564.00	2161.00	8403.00	19275.00	3625.50

UPDASP has been proposed to be the nodal agency to coordinate activities with other government agencies involved to ensure a hassle free assistance to the joint venture partner from the private corporate sector.

ANNEXURE - 4 PROPOSED AGRI-EXPORT ZONE FOR FRESH & PROCESSED LYCHEE IN UTTRANCHAL, PINEAPPLE IN WEST BENGAL & GHERKINS IN KARNATAKA

(Ref : The MOU made between APEDA & State Govt. Agencies.)

Activities Involved And Proposed Financial Resources (RS. Lacs)

PARTICULARS	TOTAL COST	GOVT. ASSISTANCE AMOUNT*	PVT. SECTOR INVESTMENT
AEZ FOR LYCHEE	820.00	511.50	308.50
-DPR Production enhancement program Post harvest management Processing units. Export promotion R& D activities			
AEZ FOR PINEAPPLE			
---DO----	3822.00	669.50	3029.00
AEZ FOR GHERKINS	1095.00	394.50	700.50
-----DO-------			

Government support from organizations namely MFPI, NHB, MOA, State Horticulture Department , APEDA, UTDASP.

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ADOPTION OF ISO 14001-A NEW IMPERATIVE FOR FOOD INDUSTRY - A PRACTICAL IMPLEMENTATION CASE STUDY

Sohrab
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Formerly Director BIS incharge of ISO 9000 Certification

INTRODUCTION

At the dawn of 21st century, we are witnessing a scenario where over exploitation of natural resources and degradation of environment in the developmental process has brought the planet earth at the verge of losing its balance. The increase in the scale of impact of human activities leading to global warming (green house effect), the depletion of the ozone layer, imbalances in biodiversity and increasing air pollution are posing a threat to human survival. Therefore sustainability in the development process has become the core issue and has assumed a global dimension. Collective environmental management poses a severe problem and is a sensitive challenge because it involves the creation of rules and institutions that embody notions of shared responsibilities and shared duties by governments that impinge very heavily on their domestic structures, resources and organizations.

The global concern for environment projection found expression for the first time through the United Nations conference on 'Environment and development in 1972 which articulated the concept of sustainable development recognizing that the environment and development are extricably interconnected. This concern was translated into action through the epoch making report "Our Common Future" by the World Commission on Environment and Development in 1987 which emphasized the importance of environmental protection for sustainable development. This led industry, government and public to seek solutions to environmental problems. Initially these efforts resulted in model regulations that attempted to stop pollution at the discharge pipe. This command and control approach focused on end-of -pipe solutions.

These initiatives triggered a world-wide awakening on the importance of preservation of environment and prevention of degradation to make the earth a safe place to live. A blue print for a new and equitable global partnership was set through the Rio Declaration and adoption of Agenda 21 by the United Nations Conference on Environment and Development in 1992 for creation of new levels of cooperation among the countries, working towards international agreements which respect the interests of all and protect the integrity of the global environmental and developmental systems.

he ever increasing complexity and continual expansion of industrial activities and processes have resulted in increased environmental risks and damage. This has put relentless pressures on industry to realize that the current patterns of production and consumption are unsustainable and they need to increasingly integrate environmental considerations into their business strategies. Also there has been a gradual shift from a position of limiting pollution and waste in compliance with government regulation towards one of preventing them.

The regulations and regulatory standards varied from country to country and they were found wanting to solve global issues. This necessitated global approach to environmental protection. The ISO -14001 based on the well-defined principles of management developed by international consensus is a step in this direction. This is designed for more efficient use of raw material and waste material, reduction of emission and increased investment in pollution control and cleaner technologies. The standard encompasses a full range of issues including those with strategic and competitive implications and are intended to provide industries with the elements of an effective environmental management system which can be integrated with other management requirements to assist industries to achieve environmental and developmental goals. These standards specify the core elements of an environmental management system to support environmental protection in balance with socio-economic needs.

The food industry, though not serious pollutor, could contribute towards sustainable developments by providing structure management of aspects having environmental impacts. ISO 14001 as the totality of environmental management system, has only recently begun to attract keener interest especially in the light of its implication on the trade. A real life situation for implementation in a leading dairy is given in Annex -A.

TEN COMMANDMENTS FOR ISO 14001 IMPLEMENTATION

1. Conceptual frame for continual improvement : No industry can survive unless it charters its future on the track of continual improvement. The Environmental Management System (EMS) recognizes continual improvement in environmental performance through efficiency in operations. To develop and implement an EMS in a food industry enunciating a path of continual improvement, the "Deming model" dividing the industry's actions into four PDCA phases (P-plan, D-Do, C-Correct, A-Act), is used. The environmental management standard (ISO-14001) is modelled on this concept (See Fig 1).

Plan (a planning phase) : The industry sets its objectives and goals and establishes methodologies for achieving them. It needs to ask the fundamental questions " where are we now and where do we want to go? Answering these questions involves three steps:

a) Initial Environmental Review for establishing existing environmental position.

b) A Clear Vision of the Future for understanding and responding to current and anticipated environmental issues and .

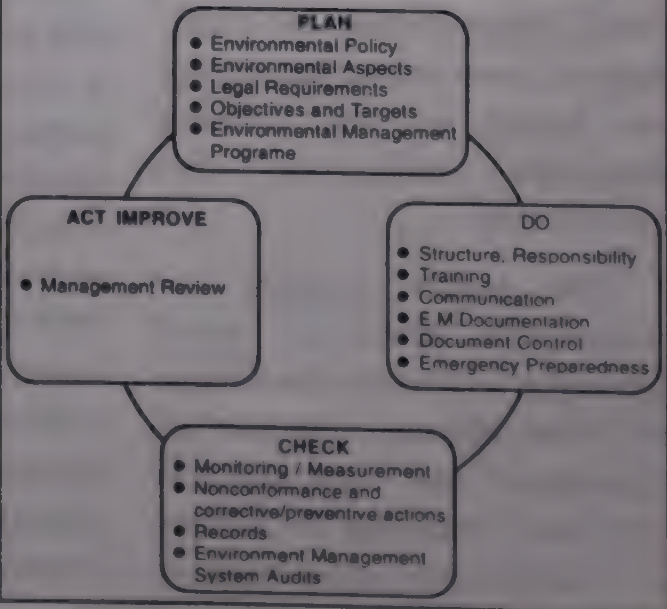
c) Strategic goals and plan of action for monitoring throughout the entire chain of command to ensure that the goals are technically, financially and organizationally feasible.

Do (an action phase) : The plan is implemented and the agreed measures are taken in pursuit of the industry's goals. The environmental management system designed is implemented in the industry. Responsibilities and procedures of the personnel who are accountable for their implementation are defined and implementation of each procedure should be as effective and efficient as possible. The programme of training and internal communication should also be defined in the management programme.

Check (an evaluation phase) : The activities performed are checked for effectiveness and efficiency and the results are compared with the plan. The industry should have tools to answer the question "how are we doing?". These monitoring and control tools usually include maintenance of records on environmental emissions, wastes, and performance. They also include corrective and preventive actions, environmental audit procedures and programmes. The ISO-14031 is used for environmental performance evaluation against stated policies, objectives and targets.

Improve (a corrective action phase) : As a result of evaluation, any deficiencies identified are corrected, the plan is revised and adapted to changed circumstances, and procedures are reinforced or

Fig. 1 Deming Cycle (ISO 14001)


PLAN
• Environmental Policy
• Environmental Aspects
• Legal Requirements
• Objectives and Targets
• Environmental Management Programe
ACT IMPROVE
• Management Review
DO
• Structure, Responsibility
• Training
• Communication
• E M Documentation
• Document Control
• Emergency Preparedness
CHECK
• Monitoring / Measurement
• Nonconformance and corrective/preventive actions
• Records
• Environment Management System Audits

reoriented, as necessary. A periodic Management Review ensures that the EMS continues to be responsive to changing circumstances, including, for example, new scientific knowledge about the environmental effects of changing national or international markets for products, government regulation, and changes in consumer requirements. When the industry has identified changes that should be made to the EMS it will inevitably return to the Plan phase to introduce those changes into the environmental policy and EM Programme.

2. Training on Environmental Management and Cascading through the hierarchy

Training the entire hierarchy is essential for successful implementation of EMS. The best way to accomplish this task is to train a core group of trainers who cascade ISO -14001 requirements to personnel at different levels.

EMS demands that the suppliers, contractors and service providers also need to be trained on basic requirements of the system. The core group conducts such training programmes.

3. Initial Environmental Review

The Initial Environmental Review provides data and information that forms the basis for the development of environmental management systems. ISO-14001 states that initial environmental review is the means by which industry establishes its current position with regard to the environment and it consists of an initial comprehensive analysis of environmental issues, aspects, impacts, performance and control related activities of the industry. It is thus aimed at identifying exactly where the operation is positioned in relation to be environment. Food Industry often have limited knowledge of the impact of environment on their activities and products This knowledge is the foundation of environmental management system.

The Initial Environmental Review addresses the following four areas;

a) Identification and evaluation of the potential environmental issues and concerns arising from the operations; for example, what substances and wastes are generated that could harm the environment,

b) Existing management and operational practices and procedures; for example, who is responsible for hazardous waste disposal and how are those wastes stored on site, what are the environmental issues relating to the industry's activities that are not directly related to the environment,

c) Previous environmental accidents, incidents, fines / penalties and resultant abatement/ preventive measures, and

d) Legislative and regulatory requirements and the status of the operation with respect to these requirements; for example, does the operation have the necessary permits for its waste water-discharge.

It coverers both normal and abnormal operations, as well as possible emergency conditions such as fire, flood, earthquake, bomb, spillage/ leakage, vandalism, etc. The emphasis should be on the environmental aspects of the industry. The relevance of these aspects is determined by evaluating the relevance of the environmental impacts that are a result of the environmental aspects.

The initial environmental review report becomes the baseline information for development of the environmental management system in an industry; particularly it provides input to policy formulation and planning activities such as identification of environmental aspects and legal requirements and establishments of objectives and targets and environmental management programme for the implementation of ISO -14001 in an industry.

4. Gap Analysis -present status vs ISO-14001 requirements

After carrying out initial review, the industry comes to know where it stands with reference to environmental management system. A thorough gap analysis is therefore done to fill in the gaps that exist as against ISO-14001 requirements. This is normally done by specially constituted Core Group on Environment. This exercise reveals what are the operations, documents and records in line with the requirements, which of these exist but not in line with the requirements and which do not exist but need to be created to meet the requirement. The latter is more important. It should be planned carefully and gap should be filled in such a way that it does not lead to over documentation. This gap analysis also considers if there are any gaps in complying with regulatory requirements on environment.

5. Development of Environmental Policy

An Environmental Policy is a statement by an industry of its principles and intentions in relation to its overall environmental performance. This provides a framework for action and for setting of its environmental objectives and targets. The environmental policy provides a nucleus around which carefully designed operational procedures, work instructions and records can be developed. The development of an Environment Policy should be a carefully considered process as the industry environmental performance is judged against it.

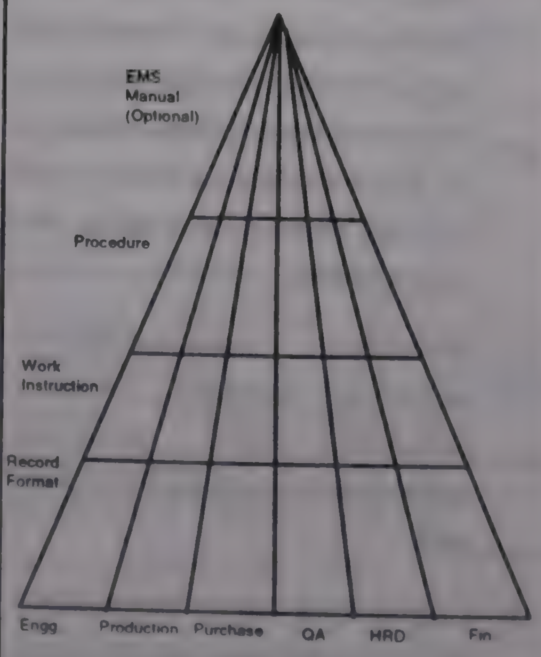
Once the Environmental Policy is finalized and published, it acts as the driving force behind all of the industry's activities in the environmental field, and can have far-reaching business implications for the future direction of the industry. It should be integrated into the industry's overall business strategy and should also be compatible with other industry policies such as Quality or Occupational Health and Safety.

6. Development of documented system

a) Environmental Management System Manual - A formal environmental management system manual is optional in ISO-14001. But development of such a manual is desirable as it provides the frame and focus on industry's environment system. The manual should address the industry's commitment to meet requirements of ISO -14001 as well as list the responsibilities, procedures, and records associated with each element. The EMS manual should be simple and easy to read as its readership includes employees at any level of the industry. An EMS manual need not be longer than about 50-60 pages.

Fig 2 Documentation Pyramid

Environmental Policy + ISO-14001



b) Environmental Management System Procedures : Procedures are tools for implementing the environmental policy. Each major activity related to the achievement of targets and objectives should be specified in a procedure. Procedures provide more information about what is to be done, who has the responsibility of ensuring that activities are conducted correctly, how it is to be done and where the activities will be performed.

Carefully written procedures will from the basis for implementing the Environmental Management System. Procedures will specify who is to carry out tasks, give step-by-step description for how tasks are to be accomblished and include directions for dealing with departures from the procedures. These procedures should cover all functions, activities and process that have, or could have a significant direct or indirect effect on the environment.

The procedures are necessary to control the complete cycle of activities of the industry, ranging from the selection of resources and the design and operation of working systems, to be design and delivery of products and services and the control and disposal of waste. A typical list of mandatory procedures is given in Box 1.

Box 1. MANDATORY PROCEDURES

1. Procedure for identifying aspects.
2. Procedure for identifying legal and other requirements
3. Procedure for periodically evaluating compliance with relevant environmental legislation and regulations
4. Procedure for establishing environmental objectives and targets
5. Procedure for documenting roles, responsibility and authority
6. Procedures for training of personnel
7. Procedures for communication
8. Procedures for documentation and document control
9. Procedures for maintenance and operational control
10. Procedures for identifiable significant environmental aspects of goods and services used by the industry
11. Procedures to identify potential for and respond to accidents and emergency situations
12. Procedures for preventing and mitigating environmental impact from accidents and emergency situation,
13. Procedures for monitoring and measuring the key characteristics operation and activities having significant impact on the environment.
14. Procedures for defining responsibility and authority for handling and investigating non-conformances, taking action to mitigate any impact caused by the industry , and initiating and completing corrective and preventive action.
15. Procedures for identification, maintenance, and disposition of environmental records.
16. Procedures for periodic environmental management system audits
17. Procedure for management review.

c) Work Instructions : Work instructions are step-by-step description how the work is accomplished. For example, if the industry conducts environmental monitoring, the step-by-step instructions for operating, calibrating, maintaining, and decommissioning a sulphur dioxide monitor would be given in separate documents. A work instruction is clearly needed whenever the lack of such an instruction could adversely affect the industry's ability to control the EMS. Instructions have a limited distribution, and they are typically housed in the departments that use them. The process for developing work instructions mirrors the process for developing procedures. The individuals who supervise the work should preferably develop the work instructions and consensus is reached among those affected by it. Then it is issued to all those who need it. Work instructions are revised as and when practices, procedures, technologies or operations change.

d) Environmental Records: Appraisal and audit process of EMS heavily leans on environmental records. Records are produced as a result of day-to -day operation of the EMS. Records are important because they demonstrate effective performance of the EMS. In many instances, records are submitted to regulatory agencies to verify compliance with permits and regulatory standards. Examples include records of training, equipment calibration, complaint responses, malfunction of an equipment etc.

Records, whether written or computerized , must be accurate, accessible and usable. It is important to update the contents of records when work practices change. Satisfying regulatory compliance requirements often requires the use of a standard format or prescribed forms for records and record keeping. All of these requirements must be considered when developing individual records and record-keeping systems.

7. Development of environmental management programme

Development of environment management programme or action plan is the most important activity in the implementation of ISO-14001 systems in an industry. It comprises of identification of main processes, environmental aspects and impacts associated with those processes, evaluation of Environment Risk Ratings for each aspect, determination of significant aspects with higher ratings, establishing environmental objectives and finally chartering environmental management action plan for continual improvement.

(a)Identification of Environmental Aspects and associated impacts: Environmental aspect is element of an industry's activities, product or services that can interact with the environment and over which it has control or influence. The main considerations in identifying the environmental aspect are processes that lead to emission to the air, release of water, waste management, contamination or degradation of land, use of natural resources and local environment and community issues. Consideration is also given not only to normal operating conditions but also to start up, shut down, changes in operation and foreseeable emergency situations. It does not mean to identify all aspects but only those that have significant environmental impacts. All significant environmental aspects are factored into the environmental action plan. These also include legislative requirements.

An inventory of all operations and processes including operation subcontracted out is required in order to ensure a comprehensive identification of all potential effects on the environment. The inventory should be detailed enough to enable identification of direct releases from the industry's operations under normal, abnormal and accidental conditions. It will also be important to identify inventories of materials hazardous to environment that will be stored or handled by the industry. The findings of initial review and life cycle assessment, if any, are important inputs for identification of aspects.

Box 02. CRITERIA FOR ENVIRONMENTAL RISK RATING (ERR)

Criteria	Likelihood of occurrence (A)	Likelihood of detection (B)	Severity of consequence (C)
Very High	5	5	10
High	4	4	8
Moderate	3	3	6
Low	2	2	4
Very Low	1	1	2

ERR = (A+B) x C

Box 03 . AN EXAMPLE OF APPLICATION OF (ERR) MODEL FOR BOILER OPERATION

Aspects	Impacts	Likelihood of occurrence (A)	Likelihood of detection (B)	Severity of consequence (C)	Rank (A+B) C
Suspended Particulate Matter	Air Pollution	3	4	2	14
Sulphur dioxide (SO_2)	Acid rain, soil contamination	2	4	2	12
Nitrogen Oxide (NO_2)	Green house gas	1	4	2	10
Carbon dioxide (CO_2)	Green house gas	3	4	4	28
Noise	Nuisance Health Hazard	2	4	4	24
Heat	Health Hazard	2	3	2	10
Oil / grease Spillage	Soil, water contamination	2	3	2	10
Use of fuel	Depletion of natural resource	3	4	3	21
Use of water	Depletion of natural resource	2	3	2	10

A four-stage plan is used for identifying and quantifying environmental aspects:

Stage 1- Choose an activity or process to evaluate,

Stage 2- Identify as many environmental aspects associated with it

Stage 3- Identify as many actual or potential, positive or negative environmental impacts associated with each identified aspect.

Stage 4-Evaluate significance of identified environmental impacts.

b) Establishing Environmental Risk Rating : After identifying aspects associated with different processes, the Environmental Risk Rating (ERR) model (See Box 02) is used for ranking aspects to determine impact significance.

Industry should priorities the significant aspects (ERR □ 20) and factor them into the organizational objectives and environmental plan. These also include legislative requirements. Prioritisation is done on the basis of score a particular aspect receives (See Box 03)

C) Development of Objectives : Objectives are overall goal arising from environmental policy, that an industry sets itself to achieve which is quantified where practicable. These are determined based on significant aspects identified to achieve improved environmental performance. Objectives can have broad application extending across an industry's activities and should be consistent with the environmental policy.

Box 04. ESTABLISHING OBJECTIVES AND TARGETS

SL NO	Objectives	Targets	Remarks
A	**MANAGEMENT OBJECTIVES**		
1.	To train all personnel so that they understand their specific role in the management of industry's environmental aspects	31 Jan 2001 Ongoing	
2.	To minimise chances of ammonia leakage	15/4/2001	
3.	To minimise the release of CO_2 into atmosphere	31/3/2001	
4.	To comply with legislative norms for air quality & noise	Complying	
5.	To fined out available alternative ECO friendly refrigerant	31/3/2001	
B.	**MONITORING OBJECTIVES**		
6.	To keep abreast of the developments of packing material which have reduced impact on environment in order to identify substitutes to those currently being used	Ongoing	
7.	To comply with legislative norms (water)	31/3/2001	
C	**IMPROVEMENT OBJECTIVES**		
8.	Reduce fugitive emission by 5%	31/3/2001	
9.	Reduce energy consumption by 5%	15/4/2001	
10.	Plant at least 3500 trees	1/6/2001	
11.	Reduce water consumption to the extent of 15% over 1998-1999.	1/6/2001	
12.	Develop environmental awareness amongst all personnel including vendors/contractors	15/3/2001	
13.	Educate drivers per year on road safety and hazards in transportation of milk and milk products.	30/6/2001	

Objectives are governed by industry's identification of specific goals and targets, actual or potential impacts of its activities on environment , operation conforming to current legislations and establishing whether impacts can be controlled, reduced or improved. The main criteria for setting environmental objectives are the significance of impacts established by ERR.

d) Environmental Targets : It is a detailed performance requirement of the industry, quantified where practicable that arises from environmental objectives and that needs to be set and met in order to achieve those objectives. Targets are measurements of objectives and usually include date by which implementation of the objectives will be accomplished. The plans for objectives and targets should take into consideration relevant findings from environmental review and ERR. It is important to establish that targets are feasible consistent with the nature of business and help achieve associated objectives.

The environmental objectives are normally classified as management objectives, monitoring objectives and improvement objectives (See Box 04) This is actual exercise done in a leading dairy where 13 objectives were identified on basis of ERR.

e Environmental Management Programme : To achieve set objectives and targets, the industry should establish a strategic course of action. The environmental management programme is a programme of action .It is an example of how environmental aspects and impacts should be

BOX 05. ENVIRONMENTAL MANAGEMET PROGRAMME FOR BOILER OPERATION IN A DAIRY

SL.NO.	Particulars	Environmental Consideration
1.	Aspects	Carbon dioxide emission
2.	Impact	Air pollution-Green house gas
3.	Objective	To minimize release of carbon dioxide into atmosphere
4.	Target	To reduce the amount of CO_2 that are emitted into the atmosphere by 5%
5.	Significant environmental impact	Depletion of ozone layer, green house effect
6.	Plan of action	Efficient operation of burners Regular monitoring of emission
7.	Assigned responsibility	Mr. Girish Gupta, Environmental Manager
8.	Required resources	Making CO_2/O_3 meter operational and monitoring them Purchase of instrument for measurement of air emission
9.	Projected date of completion	31March 2002

addressed by the industry's environmental management system and its critical factor for ensuring its overall success. The environmental programme should address schedules, resources and responsibilities for achieving the industry's objectives and targets leading to continual improvement. An actual example of an environmental management Programme worked out in dairy is given in Box 05.

8.Implementation of environmental management system.

When documented system including environmental management programme is ready, it is disseminated to functionaries concerned for implementation. The implementation is either done in phases in different areas or at a starting predetermined time covering all areas in the organization at the same time.

It is ensured by the In-charges of the functional areas that personnel follow the documented system and implementation is effective.

9. Environmental management system audit

a) Internal audit : It is a mandatory requirement in ISO-14001 to conduct internal audits at planned intervals to determine whether the environmental management system conforms to the planned arrangements and is effectively implemented and maintained.

Internal audits are conducted to see whether the documented system is actually being implemented as laid down and if not, to examine the reasons for non-conformity and take suitable corrective actions. These give assurance to the management that its Environmental Management Systems are effectively achieving the planned environmental objectives. Internal environmental audits should be carried out as soon as the environmental management system has been installed.

Internal environmental audits are an essential step towards monitoring and stabilizing a documented environmental management system. It is undertaken by trained members of the industry's own staff. Internal audit gives confidence to the management that system is in place and is implemented effectively.

b) Pre-assessment or trial audit : Pre-assessment is a confidence building audit and is conducted after a documented quality management system is ready, installed and allowed to operate and has stabilized by means of internal audits and management reviews. During Pre-assessment, documented system is audited for ensuring its compliance to the ISO-14001 requirements. When system deficienies are no longer visible, it is the time for the industry to put in an application for certification. However, inviting third party certification agencies is an expensive affair. It is, therefore, advisable for the industries to organize pre-assessment prior to final audit by certification body.

10. Certification process

When the industry is fully confident, it files an application to the third party certification agency. Certification process involves appraisal of the system, issue of certificate and surveillance after certification.

a) Appraisal- The appraisal system is a three-stage evaluation:

i) Adequacy audit of documents - The application and documents submitted are reviewed by qualified auditors to see if they conform to all of the pertinent requirements of applicable standards. Any nonconformities, ambiguities or omissions observed are intimated to the industry for taking corrective action.

ii) First stage site audit-A team of auditors visit the applicant's premises to gather information on regulatory compliance, ineffectiveness of internal auditing, scrutiny of environmental management programme, site location, plant layout and special skill/expertise needed in the audit team . This report becomes a good guide for final compliance audit.

iii) Second stage site audit-A team of auditors led by a lead auditor/ team leader visits the applicant industry according to a predetermined schedule to audit the quality management system and to determine how well it conforms to the procedures and activities as per the documented environmental management system and the ISO -14001. This audit follows a trail technique (See Fig 3).

b) Grant of certification and surveillance - Once the audit findings are satisfactory the certification body awards a certificate to the industry valid normally for three years. Having issued a certificate to the successful industry, the certification agency has a system of monitoring to ensure continued compliance with the standard and the documented system. The monitoring is normally by two surveillance audits during a year. The purpose of surveillance system is to retain confidence in the continued effectiveness of the quality management system of the certified industry.

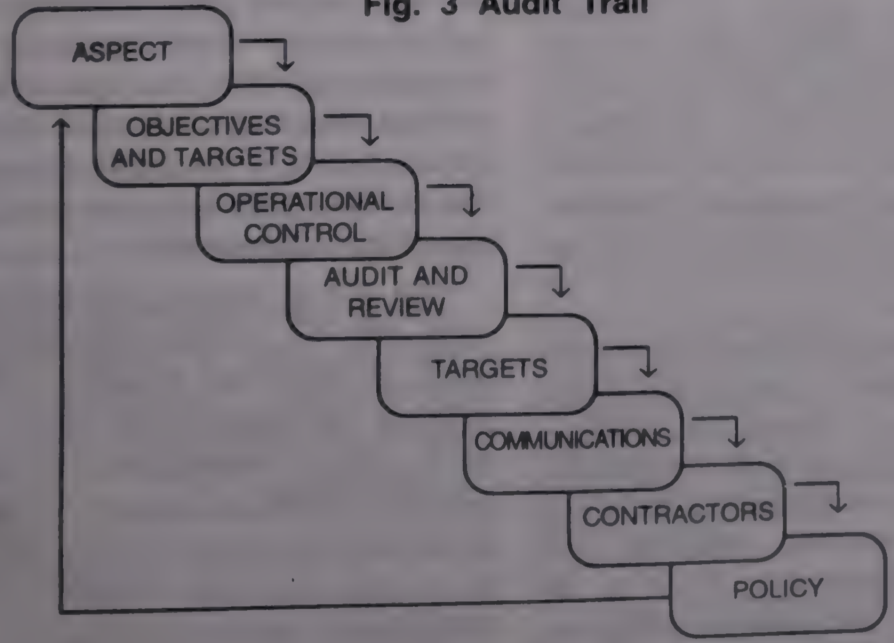
5. CONCLUSIONS

The acceptance of the ISO-14000 series is spontaneous by most of the countries similar to ISO -9000 series. It is expected that very soon it will be adopted by most of the countries around the world. It is recognized as an instrument for successful implementation of agenda 21, the blue print for global environmental management.

The dairy industry would be better placed if it earnestly implements ISO -14001 in conjunction with ISO-9001. It brings process efficiency and guards against emergency situation. Thus it is an instrument for efficient utilization of resources such as water and electricity.

The greatest advantage of implementation of ISO-14001 is that it provides competitive edge in the marketing place both nationally and internationally.

Fig. 3 Audit Trail



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HANDLE WITH CARE*

Tomato gets easily damaged due to its high water content. IIMA and Ahmedabad-based packaging company, Core Emballage have developed the "Vastrapur Carton" for safe transportation of tomatoes.

Two years ago, when the wholesale price of tomato had crashed to Rs 30 per crate of 20 kgs in Ahmedabad, farmers in the region were letting the crop rot in the field rather than spend on taking their produce to the market. The transportation cost of a crate of tomatoes from the villages around Ahmedabad to the city's wholesale markets worked out to around Rs 15, with Rs 12 being the cost of the wooden crate and Rs 3 the charges of the transporter. This was 50 per cent of selling price, far too high to make transportation worthwhile. Instead, the farmers were trying to sell directly to consumers who would drive down from Ahmedabad, a number too small to take up much of the produce.

Watching a report on the situation on television, Girja Sharan of the Indian Institute of Management Ahmedabad (IIMA) Centre for Management of Agriculture decided to try and help. With a background in agricultural engineering, he began work on developing tomato packaging which might allow Gujarat's farmers to transport their produce where prices were better, without the damage associated with long distance logistics. Unlike potato and onion, the other high consumption vegetables, tomato is easily damaged and isn't amenable to cold storage because of its high water content.

The result of the IIMA's efforts is the Vastrapur Carton, developed and commercialised in league with the Ahmedabad -based packaging company, Core Emballage. Designed keeping in mind the repiration rate of tomatoes, the corrugated fibre board carton is priced at Rs 24 and Core has sold 6,000 pieces so far. Says Sharan, "The 50 tomato growing villages around Ahmedabad alone require five million cartons a year, so there is huge business potential."

Sharan hopes to do for tomatoes what the export-led packaging revolution did for Maharashtra's grapes, making it possible to transport them in quantity across the country. But packaging has to be a function of price and the problem with tomatoes is that it is a relatively low value commodity. Says V Srivastav of Core Emballage, "The current price of the Vastrapur Carton is too high. We're working on bringing it down to around Rs 13, where it can compete with the wooden peti, which has he added advantage of being recyclable". At the same time, the product appears to have made a breakthrough in Himachal Pradesh, which grows tomatoes in June-August, a time when the vegetable is scarce . As a result, a 15 kg crate of HP tomatoes fetches Rs. 200 in the wholesale market making the Vastrapur carton a feasible proposition. Besides HP has been discouraging the use of wood in packaging, prompting a Solan - based Organisation named International Development Enterprise to order 2,000 cartons from Core on a trial basis.

The story of the Vastrapur Carton is, of course, a part of the larger process of improving post - harvesting systems in the country, which includes packaging, transport, storage, washing, cleaning and grading. Dominated as it is by wholesalers and commission agents, the domestic distribution system has remained fairly archaic. Says Sharan, "The system puts heavy discounts on damaged goods, which find their way to retailers in poorer areas. But there is no corresponding reward for high quality".

Experts estimate losses on account of damages to be 30 per cent of total fruit and vegetable production, which amounts to a massive Rs 30,000 crore. In Delhi, the National Dairy Development Board (NDDB) has tried to create a parallel system for its Safal brand of fruits and vegetables, which sorts and grades the produce in the fields and brings it to the company's ten booths in plastic crates. NDDB's effort has been to eliminate middlemen, bring down distribution costs and brand the produce as a mark of quality.

Though NDDB has restricted itself to Delhi and has a market share of less than five per cent, it has created a model that is being duplicated elsewhere. Says Sharan, "Large growers and businessmen are beginning to develop their own supply chains. Besides, well - packaged produce from overseas markets have begun to make their presence felt in our retail stores. This will spur local entrepreneurs to speed up modernization.'

As a logical extension of the project for safe transportation of tomatoes from the farms to the markets, the IIMA is now working on packaging that will take the product from the distribution centers to the final consumer. Coming soon to a shop near you flawless red tomatoes in plastic film pouches.

Reprinted from the Economic Times, New Delhi dt 10th Sept. 2001.

SWEET INDIA*

The Alternative to Sick Units

B. R. Bedekar,

Food Technologist

Every day we get bad news about engineering, automobile spares, chemical textiles, plastics and many such industries. What is the alternative? Shifting to indigenous processed food products is perhaps the only option for those who want to utilize their space, manpower, electric load and other infrastructure facilities available with them. All processed food products except those made from fruit and vegetables have good profit margins.

The turnover in the volume and value of Indian sweets like *pedha, barfi, laddoo, petha, gulabjamun* and many such sweet products is 100 times more than the turnover of chocolates and western-type sweets sold in India. This industry is in the unorganized sector. However a market survey indicated that the turnover of Indian sweets is over Rs 10,000 crores a year.

Machine to make most of these sweets are now fabricated by Indian engineers. With an estimated 20 per cent growth in this market one can imagine the scope this industry has in India. As these sweets are liked by Indians working outside the country, a big export market also exists. For the past three years a multinational food products company based in India is trying to make and sell *barfi* during Diwali and other festivals.

PROCESSED FOOD

A survey made in 30 big cities of north India revealed that *jalebi* worth Rs 2 lakhs is sold every morning in all these cities. *Jalebi* packed in small quantities and frozen can have a very long shelf life. This *jalebi* when heated in a micro wave oven is a good substitute for a piping hot fresh *jalebi*. Those who stay outside India can buy this frozen *jalebi*.

Sev - pharsan-aloo bhujia is a fried product with a dash of *masala* and is very popular in all parts of the country. Ninety-nine per cent of this production is in the unorganised sector. A machine to make this product in a hygienic way has been developed. The size of the automatic machine varies from 100 kg per hour to 1,000 kg per hour. Those who make this product on machines have the advantage of saving on frying oil, labour and fuel. This cost saving enables a large scale manufacturer to compete with small scale units. Different formulations to cater to the taste of western clients have been achieved and hence there is great opportunity for exports.

Chivda (puffed fried rice flakes with *masala*) and fried *dal* (*channa* and *moong*) has a big market. This product worth over Rs 600 crores has good potential in the domestic market and also for export. The shelf life of this product is about three months.

Rajgira wadi and *chikki* are very nutritive with high protein and less fat. At least 10 different varieties are available in the market. It is made in the most unhygienic way but mechanization has been achieved . If produced in a clean way on machines and packed attractively, it can find its way into any five-star hotel and prestigious departmental store. Profit margins are very high.

Millions of tonnes of mangoes, lemon and green chillies are used in India to make pickles. In India more than 50 varieties of pickles are marketed. Apart from household requirements, hostels, canteens and army establishments are bulk buyers of pickles. Most of these pickles have market outside the country. Some figures collected by the authorities indicate a sale of over Rs 4,000 crores a year for the pickles, chutney and masala business.

There are the least 30 different varieties of papad in India. The size and ingredient combinations vary so much that one cannot say what is the reasonable price which varies from Rs 50 to Rs. 200 per kg of packed papad.

A multinational company which studied the market has come up with a figure of Rs 5,000 crores a year for this product. Right from a poor man's hut to palatial houses, this commodity is consumed in large quantities. Export of some of the varieties is picking up.

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* Reprinted from The Statesman

CHAPATI

Ninety-five per cent of this industry is in the unorganized sector and the product is made and dried in the most unhygienic way. Now automatic machines have been fabricated. The machine product is made and dried in such a clean way that it is accepted in US and European markets.

A great demand exists for products like *upma*, sweet *halwa*, *khichadi*, rice *pulav*, curried vegetables, *dal* mix and several such products. An unimaginable quantity of *idli* is consumed in India and there is also a craving for the *idli* abroad. Packed frozen *idli* which contains vegetables and spices could have a tremendous export market. Heat this packet in a microwave oven, get piping hot *idlis* for a satisfactory breakfast in any part of the world.

Chapati or *roti* is the staple food of more than 60 per cent of the Indian people. Earlier *chapati* was not consumed in the South. But over the last 25 years, eating habits of Indians have changed. Ninety per cent of the wheat produced in India is consumed in the form of *chapati* or *roti*. Only 10 per cent of the wheat produced in India is used to make biscuits, bread, cake and such products. As biscuits and bread are made in large factories and there is keen competition, the manufacturers resort to advertising that gives one the impression that most of the wheat produced goes to make these products. This is not so.

The question is, since bread has been in India for over 70 years, does the *chapati* have a future? That the *chapati* indeed has a future is evident from the fact that brand has reached the dining table of the average Indian family. The use of bread is restricted to making toast or sandwiches. It has never been a replacement for the *chapati* in India.

MARKETS

Let us see who are the potential buyers of *chapati*: (i) Working women who do not have the help of their mothers or mothers-in-law and more so when husbands and children want *chapati* at every meal. A packet of *chapati* reaching her doorstep every morning along with the milk bag would give her an hour's extra sleep every day; (ii) Old couples living by themselves where the old lady is physically not capable of rolling *chapatis*. They would love to buy a packet of *chapati* every day.

Such old couples are to be found in big cities and they have money to spend; (iii) Students coming to cities from villages. They cannot afford to eat in hotels or canteens for both their meals. If a packet of *chapati* is available, they would eat it with home-made pickle or jam they bring from villages; (iv) Bus and rail passengers can have *chapati* with tea or coffee; (v) Hostels, hospitals, training establishments, industrial canteens where requirements are very large.

Chapatis are going to constitute the most profit making business of the 21st century. The market is expected to grow by 10 per cent a year. Four different types of *chapatis* can be marketed: (i) *chapatis* to last 36 hours; (ii) chapattis with preservative to last three days; (iii) *chapatis* with post packing sterilization to last four days kept at room temperature; (iv) frozen *chapatis* with a long shelf life.

But, essentially, these options in processed food offer high profit margins and can replace sick unit products.

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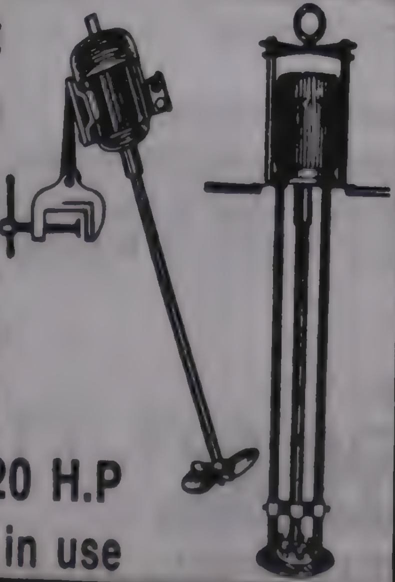

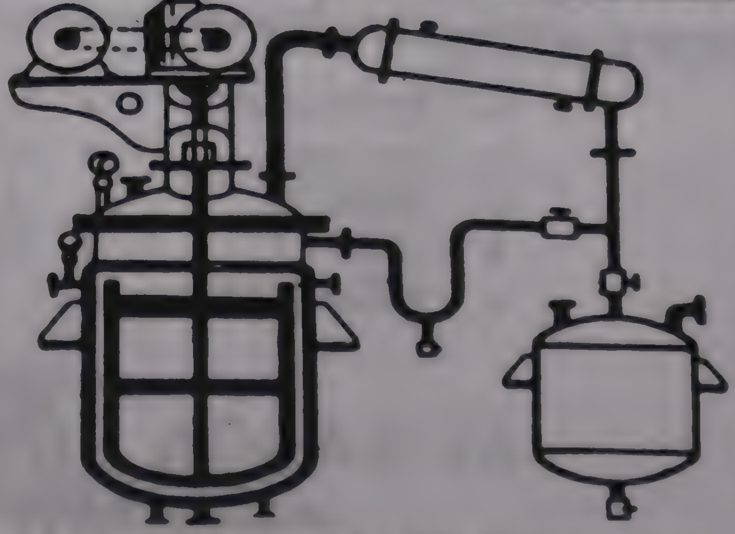

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